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INCLUDING

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ORTHOPTERA.

(ACRIDIIDÆ.)

BY

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PREFACE.

At the time of Mr. W. F. Kirby's lamented death the manuscript for the present volume was unfortunately not quite completed. Moreover, there still remained a considerable amount of undetermined material upon which he was then at work and which doubtless comprised a number of species not enumerated in these pages. It was found impossible to arrange for the inclusion of this matter in the manuscript, and it was therefore decided to include only the species already dealt with by Mr. Kirby, merely adding those previously described species which might have been omitted and filling up various "lacunæ."

This task was kindly undertaken by Mr. Charles O. Waterhouse, late Assistant-Keeper of Zoology in the British Museum, and involved the compilation of keys to the genera in all the later subfamilies, as well as specific keys for numerous genera—often a matter of no little difficulty. Mr. Waterhouse has further been good enough to assist in supervising the preparation of most of the illustrations and also in reading the proofs. Apart from the additions indicated and the correction of certain obvious errors, the text is essentially the work of Mr. Kirby, the portions for which Mr. Waterhouse is responsible being enclosed in square brackets.

A. E. SHIPLEY.

May, 1914.

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ORTHOPTERA.

The Orthoptera are insects of moderate or large size, undergoing an imperfect metamorphosis, the larva and pupa being of the same form as the perfect insect, and the pupa (or nymph, as it is often called) being active, and generally differing from the larva in the possession of rudimentary wings.*

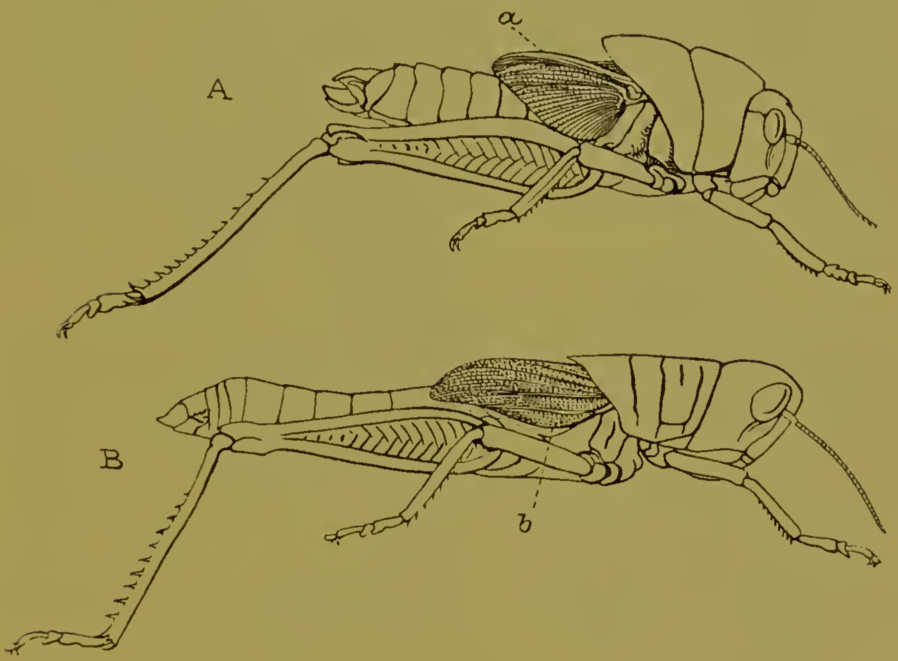


Fig. 1.—(A) Nymph of *Locusta danica*, L.: *a*, costa of wing; (B) adult *Hieroglyphus*: *b*, costa of front wing.

The Orthoptera are always provided with strong mandibles, and are almost exclusively vegetable feeders, except the Mantidæ and many Phasgonuridæ. The front pair of wings are called *tegmina*, or by some authors *elytra*, and are nearly always of a parchment-like texture (rarely horny, as in the majority of Coleoptera), while the hind wings are membranous. They are most nearly allied to the typical Neuroptera of Linnæus (the Dragonflies), the Odonata of Fabricius, which some authors have

* [These nymph forms can be distinguished from semi-apterous adults by the wings being inverted, *i.e.*, the costa is uppermost,]

proposed to include in the Orthoptera under the title of Pseudoneuroptera; the Dragonflies, however, have four membranous wings, generally resembling each other closely, and covered by a network of veins. There are a few small groups of insects which are sometimes included in the Orthoptera, which are now more usually regarded as aberrant Neuroptera, or else as independent Orders. These are the Thysanoptera, Anoplura, Mallophaga, Thysanura, and Collembola.

The Orthoptera proper are divided into seven principal families, of which the first four have the hind legs fitted for walking. They comprise the FORFICULIDÆ or Earwigs, the BLATTIDÆ or Cockroaches, the MANTIDÆ or Praying Insects, and the PHASMIDÆ or Stick Insects (sometimes called Spectre Insects).

The Leaping Orthoptera have the hind legs strongly developed, and the hind femora much thickened; they comprise the GRYLLIDÆ or Crickets, the PHASGONURIDÆ or Long-horned Grasshoppers (often improperly called LOCUSTIDÆ), and the ACRIDIIDÆ, the Short-horned Grasshoppers or Locusts. The last family, the one with which alone we are here concerned, may generally be recognized at a glance by the short antennæ and the 3-jointed tarsi.

General Observations.

The Order Orthoptera is the least numerous of the great Orders of Insects, with the possible exception of the Neuroptera, and is very poorly represented in England. In the Indian Region the species are far more numerous, and sometimes occur in devastating swarms, especially in the north-western regions, which are exposed to the attacks of various species of Migratory Locusts.

[Some species are only found in woods, others only in open grass land, and some prefer very rough ground. They deposit their eggs in the ground in masses, covered with a glutinous secretion.

A detailed account of the migratory species and their allies, by Mr. H. Maxwell Lefroy, will be found in the 'Memoirs of the Department of Agriculture in India, 1906, Entomological Series,' vol. i, No. 1, with numerous illustrations. The species referred to are:—

Acridium peregrinum, Ol. (*Schistocerca tatarica*, L., of this work), the North-West migratory locust.

Acridium succinctum, L. (*Orthacanthacris* of this work), the Bombay locust.

Acridium æruginosum, Burm. (*Cyrtacanthacris ranacea*, Stoll, of this work).

Acridium melanocorne, Serv. (*Orthacanthacris nigricornis*, Burm., of this work).

Pœciloccra picta, F.

Demodocus robustus, Serv. (*Heteracris* of this work).

Hieroglyphus furcifer, Serv. (*H. banian*, F., of this work).

These are species of large or moderate size, but many of the smaller kinds sometimes occur in large numbers and do great harm to crops and vegetation; some preferring particular food-plants, whilst others are almost omnivorous.]

Structure.

In the ACRIDIIDÆ the head is usually short and broad. The compound eyes are placed one on each side, and sometimes approximate very closely above. More frequently they are separated by a space as great or greater than their diameter; and they are sometimes raised above the level of the rest of the

Face of *Locusta*. Head of *Atractomorpha.*

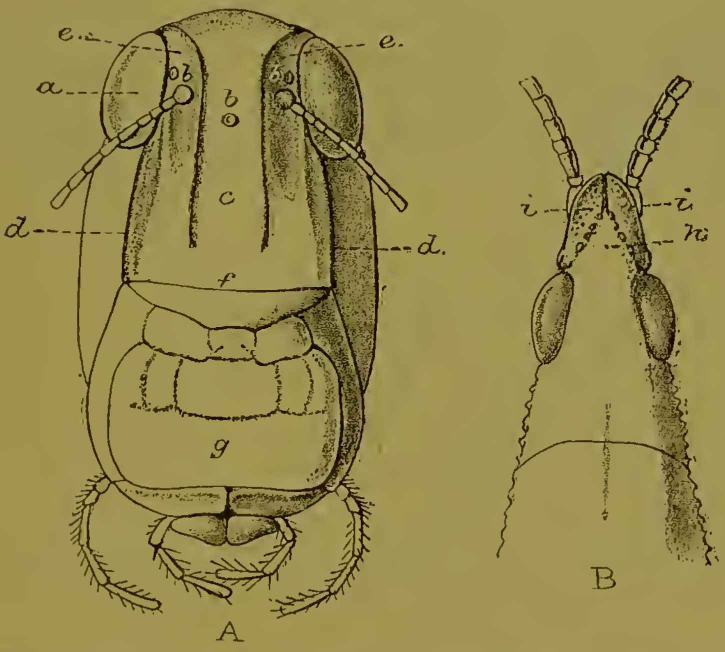


Fig. 2.—(A) Face of *Locusta*: *a*, eye, *b*, *b*, ocelli, *c*, frontal ridge, *d*, *d*, lateral carinæ, *e*, *e*, tempora, or *foveolæ*, *f*, clypeus, *g*, labrum; (B) head of *Atractomorphus*: *h*, fastigium, *i*, *i*, foveolæ.

head. The head is usually horizontal, but is occasionally obliquely raised. The extremity curves into the face, or is separated from it by a transverse carina; not unfrequently it is more or less produced between and beyond the antennæ, and this prolongation is called the *fastigium*. [The extreme apex of the fastigium is sometimes called the *scutellum of vertex*.]

The antennæ are generally placed between or below the eyes.

There are usually three ocelli, or simple eyes, the lateral ones

placed between the eyes and the antennæ, and the middle one on the frontal ridge. The *frontal ridge* is the central part of the face. It is generally raised, and bounded by a carina on each side. These carinæ often curve outwards above each eye, and below the antennæ they may either run parallel as far as the extremity of the lower part of the face (the *clypeus*) or they may become obsolete below the level of the antennæ, or may diverge, leaving a more or less triangular space. The middle of the frontal ridge is often more or less thickly punctured, and is often deeply grooved; sometimes, however, it is flattened throughout, with the carinæ scarcely marked. Under each eye there is frequently another straight or oblique carina, the *lateral carina*.

[On each side, above the antennal socket and between the eye and the fastigium, there is a space, generally more or less triangular, called the *tempora*, *lateral foveæ* or *foveolæ*.]

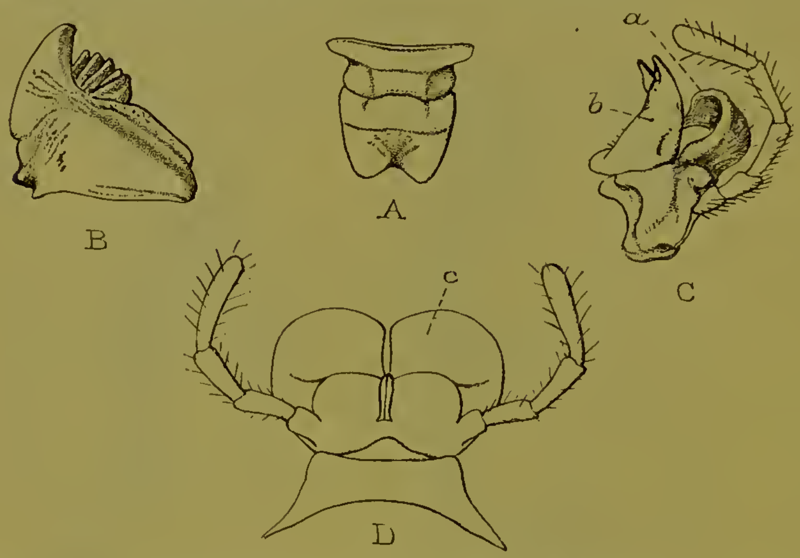


Fig. 3.—Mouth parts of *Locusta*: (A) labrum; (B) mandible; (C) maxilla; (D) labium: *a*, galea, *b*, lacinia, *d*, paraglossa.

The *mandibles* are strong, pointed or bifid at the extremity, occasionally with a tooth, or several teeth, on the inner edge. [The *maxillæ* have a fleshy *galea*, which more or less wraps round the *lacinia*; this latter is curved and bifid, or may have three teeth at the apex. The *palpi* are of moderate length, with five joints. The *labium*, which in the Mantidæ is extremely primitive and shows the maxilla-like structure most distinctly, is much modified in the Acridiidæ, the *paraglossæ* being greatly developed and the *ligula* much reduced. The intermediate form is seen in *Agroecia*, one of the Phasgonuridæ. The *labial palpi* are simple, and three-jointed. The *labrum* is leathery in texture and to a considerable extent shuts in the mouth parts.]

[For comparison figures of the labium of a Mantis (*Hierodula*) and of a Phasgonurid (*Agrœcia*) are here given.]

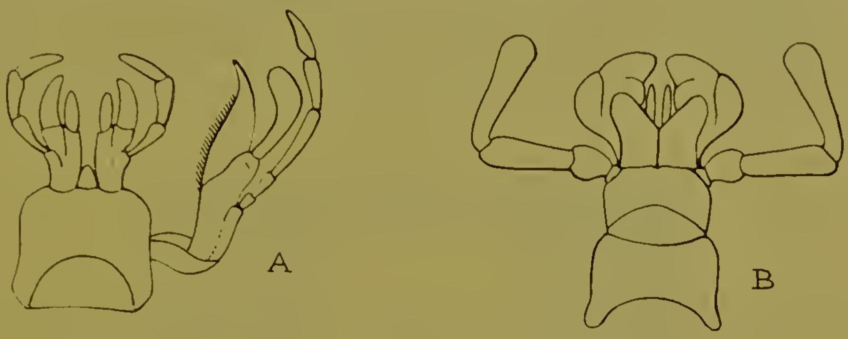


Fig. 4.—(A) Labium of *Hierodula*; (B) labium of *Agrœcia*.

The antennæ are comparatively short, with not more than twenty-four joints. The first joint, or *scape*, is generally stouter and longer than the second, which is often more or less globular, and is sometimes called the ring-joint. The remaining joints form the *flagellum*; they are sometimes long

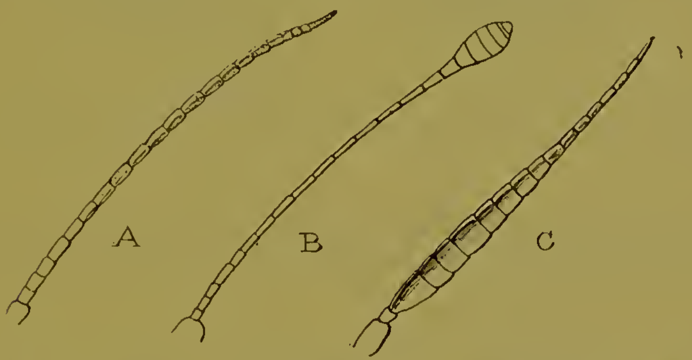


Fig. 5.—Antennæ of (A) *Locusta*, (B) *Gomphocerus*, (C) *Acrida*.

and uniformly cylindrical; sometimes the flagellum is much thickened towards the base and tapers more or less towards the extremity; and more rarely the joints of the flagellum are flattened; or some of the terminal joints are expanded or even form a club.

The pronotum is generally as broad as the head, and its front edge slightly overlaps it. It is usually truncated or rounded behind, but is sometimes continued into a long process posteriorly, especially in the ACRYDIINÆ, in which it frequently extends not only beyond the abdomen, but even covers the whole of the wings. The pronotum above is sometimes flattened, in which case there is generally a central carina and two lateral carinæ. In other cases the pronotum is cylindrical and arched above, when the

lateral and sometimes the central carina are absent. Occasionally the central carina is raised into a ridge, or humped, and spines project from the front angles, or from the sides. On the upper surface of the pronotum we frequently meet with three or four transverse depressions or grooves, the position and extent of

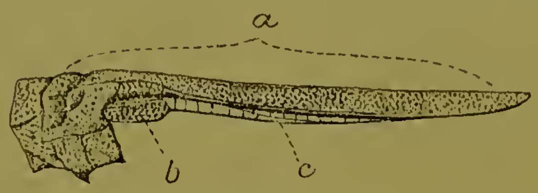


Fig. 6.—Side view of the pronotum of *Criotettix*: *a*, pronotum, *b*, tegmen, *c*, costa of wing.

which is of some importance in classification; as is also the shape of the deflexed lobes on the sides of the pronotum. [When there is a central carina it is sometimes complete, sometimes it is cut by one of the transverse grooves, and in some cases by two of the grooves].

Behind the pronotum we find the mesonotum and metanotum, followed by the nine segments of the abdomen. The first segment

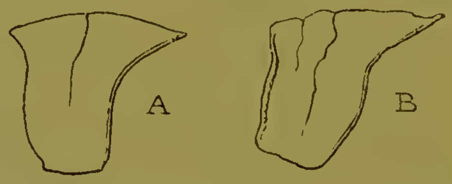


Fig. 7.—Side view of pronotum of: (A) *Gastrimargus*, with central carina cut by one groove; (B) *Bryodema*, cut by two grooves.

bears a curious structure on each side which is regarded as an organ of hearing. [It consists of a cavity covered by a transparent membrane, filled with liquid, and is connected with a nerve

Fig. 8.—Side view of the base of the abdomen of *Schistocerca*, showing: *a*, the auditory organ.

originating in the third thoracic ganglion.] Each segment, except the ninth, is provided with a spiracle on each side. There

is frequently a central carina, and sometimes a row of teeth on the upper surface. In the male the 9th ventral segment forms a structure called the *subgenital lamina* which is often bifid. There are also two terminal appendages called *cerci*. In the female the last segment bears two upper and two lower lamellæ, or valves, which are often dentate, and differ considerably in size and shape.

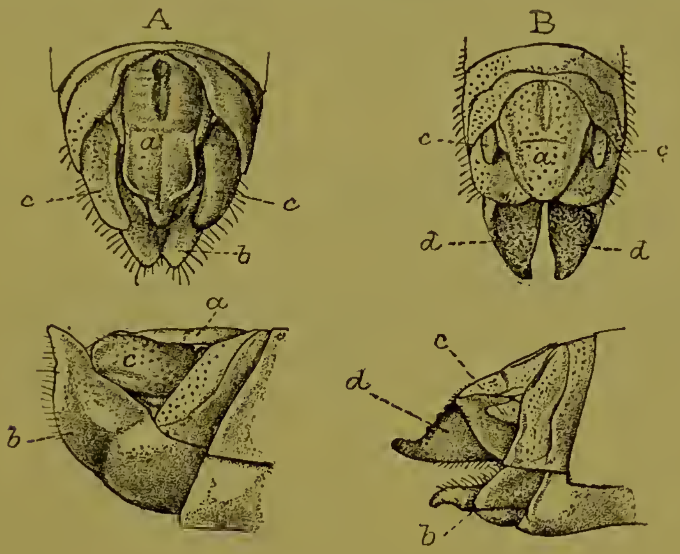


Fig. 9.—Genitalia of *Schistocerca*: (A) ♂, *a*, supra-anal lamina, *b*, subgenital lamina, *c*, *c*, cerci; (B) ♀, *a*, supra-anal lamina, *b*, lower lamellæ, *c*, *c*, cerci, *d*, *d*, upper lamellæ.

[Characters of importance for purposes of classification are found in the sterna. The prosternum may be simple or provided with a

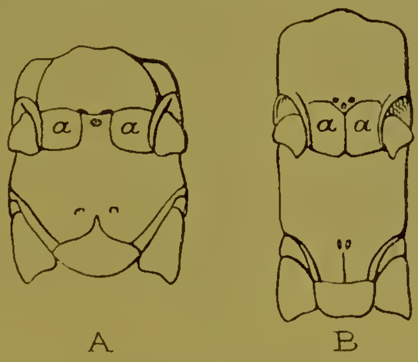


Fig. 10.—Meso- and meta-sternum of (A) *Hieroglyphus* and (B) *Leptacris*: *a*, *a*, mesosternal lobes.

strong spine or tubercle which varies much in form. The mesosternum and metasternum have on each side of the posterior margin, lobes, the shape and extent of which are of importance.]

The legs consist of five distinct sections, known as the *coxa*, *trochanter*, *femur*, *tibia* and *tarsus*. The front and middle legs

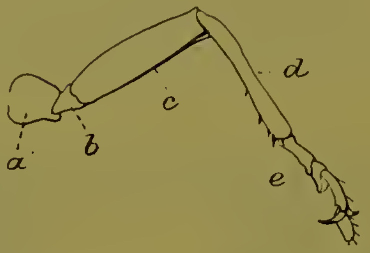
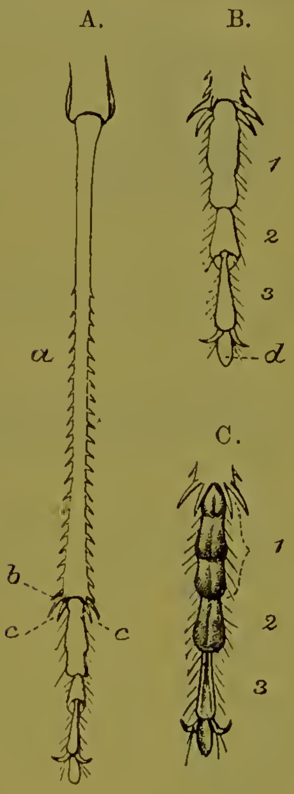


Fig. 11.—Front leg of *Cyrtacanthacris*: *a*, coxa, *b*, trochanter, *c*, femur, *d*, tibia, *e*, tarsus.

are generally much shorter than the hind legs, and much less strongly developed, though their femora are not unfrequently more or less widened or flattened, and are sometimes toothed or spined. The hind femora are generally much thickened at the base, enabling the insect to leap.



The tibiæ and tarsi are also sometimes thickened and lamellated, but more rarely. The hind tibiæ have nearly always a double row of spines on the upper surface, and two or more spines at the extremity, called *calcaria* or spurs. In the ACRIDIIDÆ the tarsi are three-jointed, and the first joint is generally the longest, and is frequently provided with three pads, called *pulvilli*, on the under surface. The last joint terminates in two claws, between which is a pad called the *arolium* (wanting in the ACRYDIINÆ), a word of which I have been unable to discover the origin.

Fig. 12.—(A) Hind tibia and tarsus of *Leptacris*: *a*, tibia, *b*, outer apical spine, which is absent in many genera, *c*, *c*, calcaria; (B) upper side of tarsus of *Locusta*, showing the three joints, and *d*, the arolium; (C) under side of same, showing three pulvilli on basal joint and one on second.

The *tegmina* of the ACRIDIIDÆ are generally comparatively long and narrow, of a parchment-like consistency, and are not folded.

[Many species have them much abbreviated, in which case they are most commonly oval or elliptical; and in some cases they are

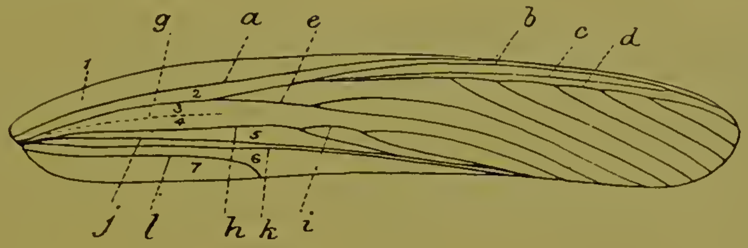


Fig. 13.—Tegmen of *Schistocerca*: *a*, mediastinal vein; *b*, scapular (humeral, or anterior radial); *c*, middle radial (or discoidal); *d*, branch of radial; *e*, posterior radial (or median); *g*, intercalate; *h*, anterior ulnar; *i*, branch of ulnar; *j*, posterior ulnar; *k*, anal (or dividens); *l*, axillary (or plicata).

1, mediastinal area; 2, scapular (or humeral) area; 3, 4, anterior and posterior intercalate spaces (discoidal of Brunner); 3+4, median of Saussure; 5, ulnar area; 6, 7, anterior and posterior axillary areas (Saussure); 7, anal area (Brunner).

absent.] They are usually more or less opaque, especially towards the base.

The *wings* usually almost equal the tegmina in length, but are much broader and are longitudinally folded. In most cases they are hyaline or glassy, with darker nervures, but are sometimes

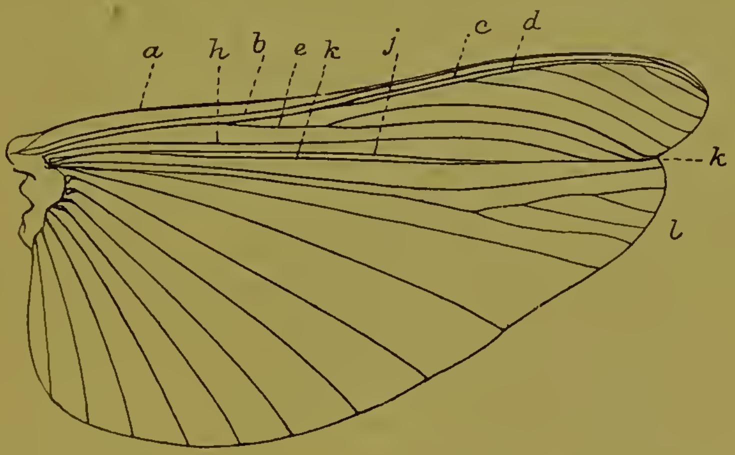


Fig. 14.—Wing of *Schistocerca*. The lettering as in figure 13.

stained with red or yellow, or more rarely with blue or green. The neuration will be better understood from the diagram than from description.

SUBFAMILIES OF ACRIDIIDÆ.

In Brunner von Wattenwyl's 'Revision of the Orthoptera,' published at Geneva in 1893, he admits nine subfamilies of the present group. Of these, the second and fourth (Pneumorinæ and Proscopinæ) are exclusively confined to South Africa and to Tropical America respectively; while the eighth, the Pamphaginæ, is not yet recorded from India, though it is probable that some representatives may occur in the northern or north-western portions. The other subfamilies are all more or less fully represented.

Table of Subfamilies of Indian Acridiidæ.

1 (2)	Claws of the tarsi not provided with an arolium or intermediate pad; pronotum always produced backwards over the abdomen	Acrydiinæ, p. 11.
2 (1)	Claws of the tarsi provided with an arolium; pronotum rarely produced over the abdomen.	
3 (4)	Antennæ shorter than the front femora.	Eumastacinæ, p. 80.
4 (3)	Antennæ longer than the front femora.	
5 (10)	Prosternum unarmed.	
6 (7)	Fastigium of the vertex horizontally produced, or sloping beneath, and forming an angle with the frontal ridge	Tryxalinæ, p. 95.
7 (6)	Fastigium of the vertex rounded towards the front, which is nearly vertical.	
8 (9)	Frontal costa obtuse; posterior tibiæ with no external apical spine; second abdominal segment smooth	Œdipodinæ, p. 128.
9 (8)	Frontal costa compressed and sulcate; posterior tibiæ with an apical spine on outer margin; second abdominal segment granulated................	[p. 158. Batrachotetriginæ,
10 (5)	Prosternum raised and laminated in front, swollen, spined or hooked.	
11 (12)	Foveolæ of the vertex contiguous, superior, and forming the extremity of the fastigium; front never sloping	[p. 160. Pyrgomorphinæ,
12 (11)	Foveolæ of the vertex varying in position, but never forming the tip of the fastigium, and often obsolete.	
13 (14)	Foveolæ superior, open behind; prosternum strumose, but rarely spined	Pamphaginæ, p. 190.
14 (13)	Foveolæ lateral or inferior, closed behind, or obsolete; prosternum distinctly spined or tuberculate	[p. 191. Catantopinæ,

Subfamily I. ACRYDIINÆ.

These insects are amongst the smallest species of the LOCUSTIDÆ, and are called Grouse-Locusts in America. They are very numerous in meadows and swampy places and many of the species may almost be regarded as subaquatic. Till recently they have been somewhat neglected by entomologists, but Professor J. L. Hancock, of Chicago, has made a speciality of the subfamily, on which he has published an important series of works, especially in Wytsman's "Genera Insectorum" (family ACRIDIIDÆ, subfamily TETRIGINÆ), in which he divides the subfamily into nine sections, six of which are represented in the Indian Fauna.

Key to the Groups of ACRYDIINÆ.

1	(2) Antennæ much flattened, except at base and apex	*Tripetalocerini*, p. 11.
2	(1) Antennæ filiform.	
3	(10) Anterior femora compressed, carinate above.	
4	(5) Frontal costa forked between the ocelli, the rami strongly divergent, forming a frontal scutellum	*Cladonotini*, p. 14.
5	(4) Frontal costa furcillate, but the rami diverging only a little or moderately in front, or parallel, very frequently separated only in a slight degree by a sulcus.	
6	(7) Posterior angles of lateral lobes spined; first joint of hind tarsi generally longer than the third	*Scelimenini*, p. 20.
7	(6) Posterior angles of lateral lobes rarely spined; first joint of hind tarsi not longer than the third.	
8	(9) Posterior angles of lateral lobes slightly produced, obliquely truncate, rarely spined; first and third joints of hind tarsi nearly equal in length	*Metrodorini*, p. 43.
9	(8) Posterior angles of lateral lobes depressed, more or less rounded; third joint of hind tarsi shorter than the first	*Acrydiini*, p. 57.
10	(3) Anterior femora sulcated above	*Batrachidiini*, p. 78.

Group 1. *TRIPETALOCERINI.*

Key to the Genera.

1	(2) Front bifid; tegmina and wings rudimentary	TRIPETALOCERA, Westw., p. 12.
2	(1) Front acuminate; tegmina and wings obsolete	BIRMANA, Brunn., p. 13.

Genus TRIPETALOCERA.

Tripetalocera, Westwood, Vigors' Zoolog. Journ. v, 1834, p. 444; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 190, 196, 310; Hancock, Gen. Ins., Orth. Tetriginæ, 1906, p. 4; Kirby, Cat. Orth. iii, 1910, p. 1.

Type, *Tripetalocera ferruginea*, Westw.

Range. Oriental Region.

Form long, rather narrow, tapering. Head with a strong bifid projection between the eyes; eyes very large and prominent. Antennæ half as long as the body, 8-jointed, the basal joint short, the second shorter, moniliform, the rest (except the minute terminal joints) considerably longer than broad, but all broad and flattened and usually broadest at the extremity; terminal joints very short, filiform. Pronotum covering the whole body, the lateral lobes strongly spined, the upper surface very rugose, with a strong triangular hump before the middle, and a lateral spine between the front and middle legs. All the femora flattened, with triangular teeth on the carinæ above and below. Tegmina (when visible) small, oval. Upper valves of ovipositor dentated above.

1. Tripetalocera ferruginea, *Westw.*

Tripetalocera ferruginea, Westwood, Zool. Journ. v, 1834, p. 444, pl. xxii, fig. 3.

Dark ferruginous brown, with a bifid projection between the antennæ, which are placed hardly below the level of the prominent eyes, and are 11-jointed. The first two joints are short and broader than the 3rd, which is moniliform, smooth,

Fig. 15.—*Tripetalocera ferruginea.*

and shining; the 4th and 5th are short, widened at the extremity; the 6th to the 10th are longer than broad, triquetral, and expanded at the extremities, except the 10th, which is more oval; from it projects the minute joint 11, which is apparently broken off, and perhaps consists of two or three closely-approximating joints. Body very rugose, a strong triangular denticulated hump a little before the middle, and a strong pointed tooth on

each side between the first two pairs of legs. Legs short and thick, all the femora nodulose.

Length 15 mm.

MADRAS: Travancore.

Type in the Oxford Museum.

The type appears to be the only specimen known from India. All other ostensible descriptions are taken from Burmese examples. The British Museum possesses specimens of this genus

Fig. 16.—*Tripetalocera ferruginea.*

from Penang and Borneo, which present differences in the proportions of the antennæ, and in the protuberances on the body. I believe them to be distinct species, but the material before me is insufficient to deal with at present. De Haan and Bolivar have described and figured species as *ferruginea* from Borneo, but I doubt if they have figured the same species as Westwood's.

Genus BIRMANA.

Birmana, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 113; Hancock, Gen. Ins., Orth. Tetrig. 1906, p. 4; Kirby, Cat. Orth. iii, 1910, p. 1.

TYPE, *Birmana gracilis*, Brunn.

Range. Burma.

Form long, oval. Head prominent, vertex pointed; antennæ inserted before the eyes, "8-jointed, all the joints except the

basal (terminal?) ones, smooth, triquetral" (the figure shows eight broad joints—the basal one may be concealed—and a terminal flagellum of three small slender joints). Pronotum narrow, not extending to the extremity of the abdomen, viewed from the side subrotund, marginal carinæ parallel in front, lateral lobes appressed, apical process emarginate, with the margin broadly deflexed. Tegmina and wings absent. Front and middle femora compressed; hind femora rather short, much dilated, with the upper carina projecting in a tooth at the extremity; front tibiæ compressed, sulcated; hind tibiæ denticulated; hind tarsi with the first and third joints of equal length.

2. **Birmana gracilis**, *Brunn.*

Birmana gracilis, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 114, pl. v, fig. 47.

Colour uniform cinereous (male only described).
Length 7·5 mm.; pronotum, 4·5 mm.; hind femora, 3·5 mm.
BURMA: Bhamo.
Type in the Genoa Museum.

Group II. *CLADONOTINI.*

Key to the Genera.

1 (4)	Pronotum compressed, foliaceous.	
2 (3)	Tegmina small, triangular	FIEBERIANA, n. n., p. 14.
3 (2)	Tegmina and wings absent	DELTONOTUS, Hanc., p. 15.
4 (1)	Pronotum not compressed.	
5 (6)	Pronotum with a foliaceous process curving forward over the head ..	CLADONOTUS, Sauss., p. 17.
6 (5)	Pronotum almost flat	MNEMA, g. n., p. 19.

Genus **FIEBERIANA**, n. n.

Plagiocephalus, Fieber (*nec* Macq.), Abh. königl.-böhm. Ges. Wiss. (5) iii, 1845, p. 407.

TYPE, *Plagiocephalus pachymerus*, Fieb.

Range. North India (?)

Head short, broad, very slightly narrower above than below; antennæ distant from the eyes, placed at the lower end of the forked frontal carina near the ocellus. Pronotum high, arched, cultrate, tectiform, wrinkled, as long as the abdomen. Hind femora very large and broad, suddenly contracted at the knee; middle legs with lamellated, notched carinæ. Thorax arched. (*Fieber*.)

This genus appears to be most nearly related to *Piezotettix*, Bd., species of which occur in Borneo and the Philippines, as well as in West Africa, New Guinea, etc.; but differs from it in the possession of rudimentary tegulæ.

3. **Fieberiana pachymerus**, *Fieb.*

Plagiocephalus pachymerus, Fieber, Abh. königl.-böhm. Ges. Wiss. (5) iii, 1845, p. 407.
Piezotettix pachymerus, Kirby, Cat. Orth. iii, 1910, p. 7.

Pronotum with a high arch, laterally tectiform, wrinkled, and finely granulated; front lateral margin waved, front angle rounded, hinder angle short, lamellated; sides of the truncated process broad, lamellated, narrowed from front to back. Upper carina of hind femora before and at the knee twice "abgesetzt" (emarginate?). Tegmina small, triangular, in the concavity of the hinder angle of the pronotum. (*Fieber.*)

Size not stated.

INDIA (*Helfer*).

Genus DELTONOTUS.

Deltonotus, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 111; id., Gen. Ins., Orth. Tetrig. 1906, pp. 9, 14.
Pœcilotettix, Bolivar (*nec* Scudder), Ann. Soc. Ent. France, lxx, 1902, p. 580.

TYPE. *Deltonotus tectiformis*, Hanc.

Range. India, Ceylon.

Finely granulated, but not rugose. Head broad, wider below than above, vertex carinated, the branches diverging on the face; antennæ very slender, 12-jointed, widely separated, slightly below the level of the lower margin of the eyes; eyes large, sessile. Pronotum strongly compressed and carinate above, pointed before and behind, projecting above the head, and about as long as the abdomen behind. Tegmina and wings absent. Hind femora about twice as long as broad, and extending for fully one-third of their length beyond the extremity of the pronotum; hind tibiæ with four or five spines on the back, and with two terminal spines on each side; first joint of the hind tarsi longer than the second and third together.

Key to the Species.

1 (2) No black lateral spot on pronotum . . *subcucullatus*, Walk., p. 15.
2 (1) A distinct black spot on each side of pronotum . . . . *gibbiceps*, Bol., p. 16.

4. **Deltonotus subcucullatus**, *Walk.*

Tettix subcucullatus, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 830.
Deltonotus subcucullatus, Kirby, Cat. Orth. iii, 1910, pp. 7, 576.
Deltonotus tectiformis, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 111, 154, pl. i, fig. 2; id., Gen. Ins., Orth. Tetrig. 1906, p. 14, pl. i, fig. 1; id., Trans. Ent. Soc. Lond. 1907, p. 152.

Darker or lighter ferruginous brown; pronotum, except the carina, darker than the rest of the body. Pronotum thickly

reticulate-punctate, sometimes with obsolete linear markings. Hind femora strongly notched above before the extremity. Valves of ovipositor hairy, dentated, with the tip pointed, and slightly curved.

Length 9 mm.

CEYLON: (*Templeton*), Pundaluoya (*Green*).

Types (♂, ♀) in the British Museum; those of *D. tectiformis* in Prof. Hancock's collection at Chicago.

Prof. Hancock states that some of the specimens from Pundaluoya and others from Tantune have the pronotum less produced

Fig. 17.—*Deltonotus subcucullatus.*

anteriorly. He is in doubt whether to regard them as larval forms, or as a distinct species, for which he suggests the provisional name of *D. cristatus* (Trans. Ent. Soc. Lond. 1907, p. 216). Mr. Green's specimens were taken among fallen leaves.

5. Deltonotus gibbiceps, *Bol.*

Pœcilotettix gibbiceps, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 580.
Deltonotus gibbiceps, Hancock, Gen. Ins., Orth. Tetrig. 1906, p. 14; Kirby, Cat. Orth. iii, 1910, p. 7.

Ochraceous-brown, granulate-rugose. Vertex (viewed from above) obtusely produced before the eyes, carinated in the middle and on the sides; seen from the side distinctly ascending, with the carina somewhat compressed; frontal scutellum nearly twice as long as broad. Pronotum acutely tectiform, in front obtusely angulated, behind truncated, middle carina straight, somewhat sloping towards the front margin, with lateral carina slightly indicated in front, with a long wrinkle simulating a carina near the shoulder, next to the lateral carina; the back with a velvety black spot on each side near the middle; the deflexed lobes beyond the hinder angle slightly produced, forming a rectangular lobe truncated behind. Front femora with undulating carina, banded with brown; hind femora with the upper carina minutely granulated, acutely sinuated before the apex; hind tibiæ with the upper margins minutely serrulated and spined, ringed with brown;

first joint of the tarsi with three pulvilli of equal length. Abdomen varied with brown.

♂. *Length* 9 mm.; pronotum, 5·5 mm.; hind femur, 5 mm.

♀. *Length* 10 mm.; pronotum, 6·5 mm.; hind femur, 5·5 mm.

MADRAS: Madura (*Décoly*).

Types in the collections of Pantel and Bolivar, in Madrid.

Genus CLADONOTUS.

Cladonotus, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 478; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 192, 208; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 112; id., Gen. Ins., Orth. Tetrig. 1906, pp. 10, 11; Kirby, Cat. Orth. iii, 1910, p. 9.

TYPE, *Cladonotus humbertianus*, Sauss.

Range. The Oriental Region; New Guinea.

Body moderately long and broad, set with spiniform tubercles. Face slightly oblique; antennæ very slender, wider apart than the distance from them to the eyes; frontal scutellum concave, the rami subcompressed, and slightly raised, simple or dentated; vertex nearly twice as broad as the eyes, subtruncated, with a small tooth on each side. Pronotum very rugose, covering the occiput, with a high compressed dentated process on the back, directed forwards; truncated and emarginate behind. Tegmina and wings absent. Hind femora dentated and often sublamellated; hind tibiæ long and slender, with numerous small spines; first and third joints of hind tarsi of nearly equal length.

Key to the Species.

1 (2) Pronotal process curved forward ..	*humbertianus*, Sauss., p. 17.
2 (1) Pronotal process straight.	
3 (4) Pronotal process expanded at extremity	*latiramus*, Hanc., p. 19.
4 (3) Pronotal process not widened at extremity	*turrifer*, Walk., p. 18.

6. Cladonotus humbertianus, *Sauss.*

Cladonotus humbertianus, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 478; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 192, 209; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 113; id., Gen. Ins., Orth. Tetrig. 1906, pp. 10, 16; Kirby, Cat. Orth. iii, 1910, p. 9.

Dark brown or blackish, eyes very prominent, wide apart, vertex carinated above the frontal ocellus; below, diverging rami on the clypeus, just beyond which the slender antennæ are inserted on each side; labrum again with one central carina. Pronotum with a lower process, dentated above, projecting over the vertex; behind this is a large flattened process, curving forward over the head and trifid at the extremity, with several teeth on the converging upper carinæ; lateral angles projecting

in a triangular tooth, with a small tooth behind it; thorax and abdomen above granulated, carinated in the middle and on the

Fig. 18.—*Cladonotus humbertianus.*

sides; extremity of abdomen concave. Femora with large lobate teeth; tibiæ with 5 short spines above on each of the upper carinæ, and a pair of terminal spines on each side.

♂. The type figured by Bolivar has the process of the pronotum longer and more slender than in the female above described.

Length 8–9 mm.; breadth, 3 mm.; dorsal appendage, 3–4 mm.

CEYLON: Peradeniya, Trincomali (*Humbert*, *Green*).

Type in the collection of the late de Saussure.

Saussure states that this insect is found in sandy places and in meadows, and on paths; also that the spines, tubercles and appendages vary considerably in form and size.

7. **Cladonotus turrifer**, *Walk.*

Cladonotus turrifer, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 843; Kirby, Cat. Orth. iii, 1910, p. 9.

Dark brown, more strongly granulated and dentated than the last species, which it considerably resembles. The appendage of

Fig. 19.—*Cladonotus turrifer.*

the pronotum is directed obliquely forward, and is nearly straight

above, though serrated and dentated; beneath it throws off a strong pointed projection, directed downwards over the vertex, and dentated above; the extremity of the upper appendage is not furcate, as in *C. humbertianus*, but is irregularly toothed and somewhat excavated beneath, between the extremity and the lower branch. The lateral abdominal carinæ are strongly toothed and serrulated. The tibiæ and tarsi are black, banded with yellow; hind tarsi with 4 or 5 small spines on the upper carinæ, and serrulated nearer the base.

Length 8 mm.

CEYLON (*Roberts*).

Type in the British Museum.

8. **Cladonotus latiramus**, *Hanc.*

Cladonotus latiramus, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 113, 114, pl. i, fig. 1; id., Gen. Ins., Orth. Tetrig. 1906, p. 16, pl. i Kirby, Cat. Orth. iii, 1910, p. 9.

Brown, very similar to the last species, but the pronotal process is nearly straight, expanding towards the upper extremity, where it is broadest, and subfurcate; in front it is strongly toothed and excavated, curving regularly inwards and outwards, the lower projection over the vertex being comparatively short. Hind tibiæ with numerous small spines on the upper carinæ.

Length 9 mm.

CEYLON: Kandy (*Green*).

Type in the Collection of J. L. Hancock.

Described from a single male.

Genus [**MNEMA**] nov.*

TYPE, *Cladonotus pelops*, Walk.

Range. Ceylon.

Body apterous, strongly rugose. Vertex considerably wider than the width of the eye and with a spine on each side; antennæ very slender, on a level with the lower part of the eyes, the bifid carina projecting distinctly between them as seen from above. Pronotum very broad at the shoulders, the lateral angles laminately tridentate, the long middle one acute; upper surface humped between the shoulders, and the median line strongly dentated behind; apex of pronotum acutely pointed, extending beyond the abdomen. Four front femora with strong triangular teeth, both above and below; four front tibiæ with two small nodules above; hind legs wanting. A strong spine on the upper side of the abdomen in front of the upcurved terminal plate.

Possibly allied to *Potua*.

* [Left unnamed in manuscript by Mr. Kirby.]

9. Mnema pelops, *Walk.*

Cladonotus pelops, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 843.

Blackish, stout. Head with a spine on each side of the vertex adjoining the eye; front with a tubercle on each side, two keels in the middle part; a single keel towards the vertex, and a forked keel towards the face; eyes extremely prominent. Antennæ very slender. Prothorax rugose, with a middle keel which is

Fig. 20.—*Mnema pelops.*

Fig. 21.—*Mnema pelops.*

most distinct in the fore part; sides dilated into membranes, each of which is armed with four spines; hind part lanceolate, extending somewhat beyond the tip of the abdomen. Legs stout; femora armed with teeth; hind tibiæ [now lost] with very short spines. Wings rudimentary.

Length 9 mm.

CEYLON.

Type in the British Museum.

Walker calls the specimen a female, but it appears to be a male.

Group III. *SCELIMENINI.*

Key to the Genera.

1 (8) Antennæ inserted distinctly below the eyes.

2 (5) Borders of the hind tibiæ and of the first joint of the hind tarsi with wide lamellar expansions.

3 (4) Pronotum very long, projecting greatly beyond the abdomen .... SCELIMENA, Serv., p. 21.

4 (3) Pronotum only slightly produced beyond the abdomen .... Abbasia, g. n., p. 27.
5 (2) Borders of the hind tibiæ and of the first joint of the hind tarsi more or less expanded, but not lamellated.
6 (7) Vertex unarmed .... Eugavialidium, Hanc., [p. 30.
7 (6) Vertex with two raised tubercles .. Gavialidium, Sauss., [p. 28.
8 (1) Antennæ inserted nearly between the eyes.
9 (10) Lateral spine of pronotum straight or curved forwards .... Criotettix, Bol., p. 31.
10 (9) Lateral spine distinctly directed backwards.
11 (12) Frontal carina not prominent ...... Acantholobus, Hanc., [p. 36.
12 (11) Frontal carina very prominent .... Loxilobus, Hanc., p. 41.

Genus SCELIMENA.

Scelimena, Serville, Ins. Orth. 1839, p. 762; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 193, 215; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 116, 154; id., Gen. Ins., Orth. Tetrig. 1906, pp. 21, 23.
Scelymena, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 484.
Scelhymena, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 581.

Type, *Tetrix productus*, Serv.

Range. The Oriental Region.

Body rugose; pronotum usually much produced; antennæ inserted in front of, and below the level of the eyes; upper ocelli slightly in front of the eyes; frontal carinæ only slightly divergent below the eyes, and produced, united below the frontal ocellus, and suddenly forking at the lower extremity. Antennæ slender, filiform, uniform in thickness throughout. Eyes large, prominent, raised above the vertex. Body above with a slight carina throughout, granulated, and pronotum more or less rugose; posterior angles with a strong spine, curving outwards and more or less forwards. Tegmina oval, rounded at the extremity; wings ample, considerably longer than broad. Femora frequently dentated beneath; hind tibiæ and first joint of hind tarsi strongly lamellated.

The species of *Scelimena* differ considerably, and may, when more material has accumulated, be subdivided into several genera. They are aquatic in their habits, the lamellated hind legs being doubtless employed as oars.

Key to the Species.

1 (10) Abdomen produced about as far as the extended hind femora.
2 (5) Hind femora almost unarmed beneath.
3 (4) Pronotal elongation longer than the extended hind femora and tibiæ .. *producta*, Serv., p. 22.
4 (3) Pronotal elongation about equal to the extended hind femora and tibiæ .... *india*, Hanc., p. 23.

5 (2) Hind femora strongly spined beneath.
6 (9) Lateral lobes of pronotum with only one spine.
7 (8) Spine nearly straight; lamellæ of hind tibiæ and first joint of hind tarsi very wide, subhyaline ...... *harpago*, Serv., p. 23.
8 (7) Spine distinctly curved forwards; lamellæ of hind tibiæ and first joint of hind tarsi narrower, more gradually formed, and only subhyaline at edges .... *gavialis*, Sauss., p. 24.
9 (6) Lateral lobes of pronotum with two spines, curving forwards .... *logani*, Hanc., p. 25.
10 (1) Abdomen scarcely produced beyond the extended hind femora; pronotum shorter .... *uncinata*, Serv., p. 26.
11 Species incertæ sedis .... *birmanica*, Brunn., p. 27.

10. **Scelimena producta**, *Serv.*

Tetrix producta, Serville, Ins. Orth. 1839, p. 762.
Acridium (*Tetrix*) *productum* (*a*), De Haan, Temminck, Verhandl., Orth. p. 168.
Scelymena producta, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 484.
Scelimena producta, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, p. 216; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 103.
Scelymena extensa, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 841.

Brown, the front lateral borders of the pronotum narrowly yellowish. Pronotum slender, very long and tapering, with dorsal and lateral carinæ, the latter somewhat indistinct in front; the front angle with a strong yellowish tooth, and a much longer lateral one, curved forwards, halfway between them is a well-marked notch; on the sides of the median carina are one or two slight elevations; the extremity is obliquely rounded, not indentated, as in *S. harpago*, *gavialis* and *logani*. Tegmina oval, narrow, rather pointed. Wings ample, much longer than broad, with the costa brown, and the hind margin crenulated, hyaline, with greenish and violet iridescence. Front femora rather uneven above; hind tibiæ and first joint of tarsi with moderately broad laminæ.

Fig. 22.—*Scelimena producta.*

Length, to end of pronotum, 28–30 mm.; to end of abdomen, 15–16 mm.; breadth of pronotum from spine to spine, 8–9 mm.; length of tegmen, 3 mm.; hind femur, 8 mm.; expanse of wings, 45–48 mm.; breadth 13 mm.

Madras: Trivandrum; Burma: Karen Hills, 3000–3700 ft., Dawna Hills, 2000–3000 feet; Java; Borneo: Sandakan.

Type in the Paris Museum; that of *S. extensa* in the British Museum.

Described from Javan specimens. Brunner von Wattenwyl states that Burmese specimens are rather larger than others.

11. Scelimena india, *Hanc.*

Scelimena india, Hancock, Trans. Ent. Soc. Lond. 1907, p. 219.

"Resembling *S. producta*, but slightly stouter in stature. Body fuscous, pale variegated, the carinæ of dorsum flavo-maculate, the tibiæ with pale annuli. Vertex subequal in width to one of the eyes, the frontal carinæ on each side little compressed and subacute. Pronotum anteriorly somewhat subangulate, posteriorly extended beyond the knees of the hind femora as far as the tibial apices, but not so lengthily attenuate as in *producta*; dorsum conspersed with granules, depressed and uneven, between the sulci forwards subfossulate on each side, between the shoulders bearing subclavated longitudinal costate protuberances, humeral angles unarmed, behind the shoulders bifossulate, and presenting a pair of rounded sub-elevated nodules; again another pair, which are indistinct and somewhat fused together, appear posteriorly opposite the middle of the hind femora; posterior process stout at the base and acuminate towards the apex; median carina rather incrassate, unevenly undulate anteriorly at the margin, little protuberant and subtuberculate; lateral lobes at the anterior margin armed with small tubercles, the posterior margin little laminate outwards, and armed with a distinct acute spine on each side, directed transversely but little curved forward. The posterior femoral margins entire, the posterior tibiæ armed with minute denticles, the margins dilated towards the apices; the first article of the posterior tarsi dilated, but not so widely as in *productus*. Length of body entire, male, 19·5 mm.; pronotum, 18 mm.; posterior femora, 7 mm."

Assam: Cherrapunji.

Type in the Oxford Museum.

S. producta, Serv. (=*extensa*, Walk.) from Java and Borneo (Sandakan), with which this species is compared, is a much more slender and tapering species than any of the following.

12. Scelimena harpago, *Serv.*

Tetrix harpago, Serville, Ins. Orth. 1839, p. 763; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 216, 217, pl. iv, fig. 13.

Dull brownish black, thickly granulated, and with a pale yellowish tomentum. Eyes large, prominent, separated by less than half their diameter; between them runs a double carina, as described in the characters of the genus. Antennæ black, with white incisions; placed considerably below and in front of the level of the eyes. Pronotum broader than the head, with the front lateral angles obtusely rounded; hinder angles with a very

strong nearly straight yellow spine: the median and lateral carinæ often spotted with yellow; two short subsidiary carinæ, one on each side of the median carina, at the base of the pronotum; behind the level of the lateral spine the pronotum is raised, and there are four strong protuberances on each side, two smaller ones near together just behind the level of the spine; and two larger ones before the middle; the pronotum then tapers to the extremity, which is slightly indented; it extends to about one-fourth of its length beyond the abdomen. Front legs black, tibiæ and tarsi spotted with yellow; front femora with two slightly marked teeth above and below, the latter yellow; middle legs black, femora scarcely toothed above, but with two strong yellow teeth below; tibiæ and tarsi spotted with yellow; hind femora with a varying number of large and small yellow teeth beneath; hind tibiæ with a wide yellowish hyaline lateral membrane, except at the base; first joint of tarsi with a similar membrane on the whole of its length, forming a long oval; second joint of tarsi of equal length, yellow, black at base and tip. Tegmina oval, about twice as long as broad, and slightly narrowed towards the extremity; wings considerably longer than broad, hyaline, with a slight bluish iridescence, brown along the costa, hind margins crenulated.

Fig. 23.—*Scelimena harpago.*

♀. The valves longer than the terminal segment of the abdomen, the upper ones turned upwards and the lower ones turned downwards at the tip; the upper ones denticulated above, and the lower ones below.

Length, to end of pronotum, 24–26 mm.; to end of abdomen, 16–17 mm.; breadth of pronotum from spine to spine, 9 mm.; length of tegmen, 3 mm.; of hind femur, 9 mm.; expanse of wings, 36–38 mm.; breadth, 10 mm.

BOMBAY: Bombay, Bandra; UNITED PROVINCES: Almora; MADRAS: Coimbatore.

13. Scelimena gavialis, *Sauss.*

Scelymena gavialis, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 485.

Scelimena gavialis, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 117, 154, pl. i, fig. 4.

Scelymena nodosa, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 840 (n. syn.).

Dull black, thickly granulated, the front and lateral margins of the pronotum narrowly edged with red as far as the lateral spines which are of the same colour, and strongly hooked forwards,

Central and lateral carinæ well marked, the latter slightly incurved in front, and not extending to the front lobe of the pronotum. Pronotum with two elevations on each side before the middle, and generally tipped with red. Tegmina grey, twice as long as broad, and obtusely pointed towards the extremity. Wings slightly iridescent hyaline, as long as or somewhat longer than the prothorax, and crenulated on the hind margins; costa brown. Front and middle femora with two or three small teeth beneath; hind femora with several small pale teeth beneath; hind tibiæ and first tarsal joint with narrower and less rounded lamellæ than in *S. harpago*.

Fig. 24.—*Scelimena gavialis.*

♀. Anal appendages black or red, nearly as in *S. harpago*; ♂ appendages much shorter.

Length, to end of pronotum, 21–24 mm.; to end of abdomen, 11–14 mm.; breadth of pronotum from spine to spine, 8–10 mm.; length of tegmen, 2 mm.; of hind femur, 9 mm.; expanse of wings, 43 mm.; breadth, 13 mm.

MADRAS: Trivandrum; CEYLON: Peradeniya, Damballa, Maskeliya, Pundaluoya.

Type location unknown; that of *S. nodosa* in the British Museum.

"One female, Dambella, October, 'from margin of tank'; two females, Maskeliya, November and February; five females and four males, Pundaluoya, March, were taken from rocks in mountain streams; when disturbed, either takes wing or dives under water and remains submerged for some time; larva in similar situations. Two more males and several nymphs were taken in June from the same locality." (*Hancock.*)

The white tip to the tegmina noted by Walker in his description of *S. nodosa* only occurs on one side, and is clearly accidental.

This appears to be the species alluded to as *Scelimena harpago* by E. E. Green (Entom. M. Mag. xxxviii, 1902, p. 215).

14. Scelimena logani, *Hanc.*

Scelimena logani, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 164; id., Gen. Ins., Orth. Tetrig. 1906, p. 94, pl. ii, fig. 15.

Brown, finely granulated, the front and lateral margins of the pronotum, and the dorsal and lateral carinæ generally more or less yellowish. A short intermediate carina on each side between the dorsal and lateral carinæ, on the front of the pronotum, and again on the front of the hinder lobe; before the middle two well-marked longitudinal elevations, the hindermost linear; lateral edges of the pronotum irregularly dentated, as far as two yellow teeth, the hinder one larger, and strongly hooked forward.

Fig. 25.—*Scelimena logani.*

Front and middle femora with two strong yellow teeth, hind femora with four to six: hind tibiæ and first joint of tarsi rather more strongly laminated than in *S. gavialis.* Tegmina oval, obtusely pointed; wings about as long as pronotum. Anal appendages blackish, with pale stripes beneath, shorter than in *S. gavialis.*

Length, to end of pronotum, 22–26 mm.; to end of abdomen, 8–9 mm.; breadth of pronotum from spine to spine, 8–10 mm.; length of tegmen, 3 mm.; of hind femur, 8–9 mm.

Ceylon: Kandy, Haragana, Pundaluoya.

Type in the Chicago Museum.

Habits similar to those of *S. gavialis.*

15. **Scelimena uncinata**, *Serv.*

Tetrix uncinata, Serville, Ins. Orth. 1839, p. 763.
Scelimena uncinata, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 216, 218.
Scelymena contracta, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 841 (n. syn.).

Dull black, shape very short and broad. Pronotum hardly extending beyond the hind femora, with the middle carina very strongly marked, and the lateral carinæ complete, undulating, and strongly curved inwards and then forwards in front; surface with 3 or 4 elevations on each side of the median carina; lateral front margin of pronotum denticulated, with a projecting angle in front, and a rectangular outer tooth, slightly curved downwards. Wings blackish, rather shorter than the pronotum. Tarsi yellowish at base; intermediate femora with two or three yellowish teeth; hind femora with 4 yellow hooked ones; hind tibiæ and first joint of tarsi with moderately broad laminæ. Antennæ short, black. Anal appendages yellow.

Fig. 26. *Scelimena uncinata.*

Length, to end of pronotum, 11 mm.; to end of abdomen, 10 mm.; breadth, 5 mm.; length of hind femur, 7 mm.

Bombay.

The description given above is taken partly from Serville, and partly from Walker's type of *S. contracta*, a much damaged and discoloured specimen.

16. **Scelimena (?) birmanica**, *Brunn.*

Gavialidium birmanicum, Brunner von Wattenwyl, Ann. Mus. Genova, xxxiii, 1893, p. 104, pl. v, fig. 37.
Engavialidium birmanica, Hancock, Gen. Ins., Orth. Tetrig. 1906, p. 25.

"Clay-brown, with dark markings. Vertex obtuse, about as broad as the eye. Pronotum with raised tubercles on the disc, parallel with the longitudinal marginal carinulæ; with the deflexed lobes obtusely dentated in front, produced behind into a straight triangular lobe, neither pointed nor curved forwards; humeral angle very finely crenulated, with a pale obtuse tubercle; the process with very acute longitudinal carinæ extending to the tip, with pale crenules far apart. Hind femora above very slightly waved, with a nearly entire carina above; hind tibiæ simple. Subgenital lamina of the male roundly produced.

"Length, body....	♂ 10·5 mm.,	♀ 12·5 mm.
,,	pronotum	15·5 mm.,	17 mm.
,,	hind femur	7 mm.,	9·4 mm."

Burma: Karen Hills.

Type in the Genoa Museum.

In the shape of the lateral spine this species resembles *S. harpago*, and in the shape of the front of the pronotum *S. contracta*. Although the hind tibiæ are called "entire," the figure shows four teeth on the outer margin. They are represented as gradually and widely laminate; and the basal joint of the tarsi also appears to be expanded and is in any case much broader than the terminal joint, as is also the short middle joint. The first joint is longer than the third. I have placed this species provisionally in *Scelimena*, to which it appears to have as much affinity as with the genera in which it has been placed by previous authors.

Genus **ABBASIA**, nov.

Type, *Abbasia subserrata*, sp. nov.

Range. Travancore.

Body depressed, but traversed by a central undulating carina; space between the eyes about as wide as the eyes, which are large and prominent; head not produced. Antennæ slender, rather longer than the head, placed distinctly below the eyes. Pronotum in front with two distinct lateral carinæ, ceasing, and then continued by three longitudinal callosities; there is also an irregular outer carina, continued towards the end of the pronotum, before reaching which it forms a small angle and disappears. Wings shorter than the abdomen, which, again, is shorter than the pronotum; the latter with a truncated lobe on each side, turned downwards and backwards. Front femora flattened, with one tooth above and two beneath; middle femora

Fig. 27.—*Abbasia subserrata.*

flattened, with two teeth beneath; hind femora very large, rounded, with several large teeth beneath; first joint of hind tarsi longer than the third, the pulvilli very small.

Apparently allied to the South American genus *Amorphopus*, Serv.

17. **Abbasia subserrata**, sp. nov.

Dull blackish brown, inner side of hind femora black and shining, lined with yellowish, as is also the abdomen; the outer side of the hind femora is also marked with yellowish, and the teeth beneath and the tarsi are of the same colour.

Length 11-12 mm.

MADRAS: Tenmalai, Travancore, W. side of W. Ghats, November 1908.

Common on rocks near water.

Genus GAVIALIDIUM.

Gavialidium, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 481; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 193, 218; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 122; id., Gen. Ins., Orth. Tetrig. 1906, pp. 22, 25.

TYPE, *Scelymena crocodilus*, Sauss.

Range. Ceylon, Philippines.

Body rugose, pronotum much produced, obtusely truncated at the extremity. Antennæ slender, filiform, inserted much below the eyes, on the sides of the frontal projection, between which the frontal carina is double, but below which it is obsolete, only reappearing as indicating a small triangular space at the extremity of the clypeus. Eyes globose, very prominent; ocelli inconspicuous. Front of pronotum with three strong raised carinæ, the middle one continued to the apex; lower lateral margins with a projecting tooth in front, expanding behind, with the margins more or less strongly denticulated, to a projecting lateral lamina bearing three teeth. Tegmina oval, narrow, pointed. Wings not much longer than broad, and shorter than the pronotum. Femora lobate-dentate; hind tibiæ only slightly widened, and the tarsal joints simple.

Key to the Species.

Pronotum without raised tubercles	*crocodilus*, Sauss., p. 29.
Pronotum with raised tubercles	*alligator*, Sauss., p. 29.

18. **Gavialidium crocodilus**, *Sauss.*

Scelymena crocodilus, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 481.
Gavialidium crocodilus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 218, 219; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 122, 123, pl. ii, fig. 1; id., Gen. Ins., Orth. Tetrig. 1906, p. 25, pl. ii, fig. 16.

Greyish brown, thickly reticulate-rugose, the dorsal carina sometimes more or less yellow, the legs sometimes spotted or interruptedly lined with yellow, and the tip of the pronotum reddish. Pronotum with three parallel carinæ on the front, the middle one continued to the extremity, which is obtusely truncated; the lateral carinæ are finely denticulated in front, and there is a larger tooth on each side at their greatest expansion; the lower lateral border of the pronotum has a projecting tooth at the front angle, behind which it is more or less strongly denticulated as far as the lateral lobe, which is armed with three teeth. Front and middle femora armed with two or three rather strong teeth above and below; hind femora much less distinctly so; hind tibiæ very slightly expanded towards the extremity. Tegmina lanceolate; wings shorter than the pronotum, with violet iridescence; costa opaque.

Fig. 28.—*Gavialidium crocodilus.*

Length, to end of pronotum, 19–25 mm.; to end of abdomen, 15 mm.; breadth of pronotum from spine to spine, 7 mm.; length of hind femora, 7–8 mm.

Ceylon: Kaduganawa, Pundaluoya.

Type in the Geneva Museum.

Found in March, April, and June. Taken "from rocks over which oozy water trickles; insect seldom actually wet; very sluggish; seldom takes wing" (*E. E. Green*, quoted by Hancock).

19. **Gavialidium alligator**, *Sauss.*

Scelymena alligator, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 483.
Gavialidium alligator, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 218, 219; Hancock, Spol. Zeyl. ii, 1904, pp. 107, 122, 125.

Very similar to *G. crocodilus*, but smaller, and the pronotum shorter. The middle carina is strongly undulated and lobate on its first half; the short front carinæ are strongly raised, but hardly crenulated; the humeral angles are spinose, and the lateral margins of the pronotum are well marked, but not denticulated; the lateral projections terminate in three equal lobes,

instead of spines; pronotum very uneven, with four oblique tubercles [on each side?]. Hind femora more slender than in *S. crocodilus*, and only armed with a tubercle on the outer surface; hind tarsi extending beyond the pronotum.

Length of pronotum, 19 mm.; breadth at shoulders, 3 mm.; length of hind femur, 5 mm.

Ceylon: Kaduganawa (*Humbert*).

Type in the Geneva Museum.

There is a specimen of an allied species in the British Museum from North China, labelled *nodulosus* in Walker's handwriting. I am not certain whether it is identical with *S. nodulosa*, Stål, from Java.

Genus EUGAVIALIDIUM.

Eugavialidium, Hancock, Gen. Ins., Orth. Tetrig. 1906, p. 24.

Type, *Eugavialidium dentiumeris*, Hancock.

Range. Borneo, Celebes, Philippine Is., Tenasserim.

[Resembles *Gavialidium* and *Scelimena*, but has the body prolonged; face declivous; the frontal costæ rather narrowly sulcate. Pronotum granulate; humeral angles unarmed, lateral angles with a strong acute spine, curved forwards; posterior process extended considerably beyond the apex of the posterior femora. Posterior femora moderately stout, the inferior margins dentate in typical species, unarmed in *hastulatum*. Hind tarsi with the first joint slightly expanded and flattened, much longer than the second and third joints taken together.]

Fig. 29.—*Eugavialidium hastulatum*.

20. Eugavialidium hastulatum, sp. nov.

Black, finely and uniformly granulated throughout, without nodosities, humeral angles unarmed, lateral angles with a curved spine directed forwards, pronotal process as long as the wings, extending considerably beyond the hind femora, and pointed at the tip, reddish on the sides beyond the spines, and slightly varied with grey above towards the extremity. Tegmina oval, reddish. Front and middle femora linear; hind femora unarmed, moderately stout; hind tibiæ long, waved, with numerous fine spines above; first joint of hind tarsi slightly expanded and flattened, much longer than the second and third together.

Tenasserim: Kawkaraik, Amherst District, 5. iii. 1908.

Type in the Indian Museum, Calcutta.

Genus CRIOTETTIX.

Criotettix, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 193, 222; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 128; id., Gen. Ins., Orth. Tetrig. 1906, pp. 22, 27.

TYPE, *Criotettix tricarinatus*, Bol.

Range. Oriental Region, New Guinea, E. and W. Africa.

Body granulated. Vertex scarcely lower than the eyes, horizontal above, or raised in front; frontal carina not divergent at the antennæ, palpi subcylindrical, concolorous, antennæ scarcely inserted before the level of the eyes. Pronotum truncated in front, generally long and tapering, the tip obtuse or slightly bifid; shoulder angles truncated, lateral angles laminated, and emitting a sharp spine. Tegmina oblong; wings as long as the pronotum. Prosternum reflexed, broadly sinuate in front. Front femora narrow, with the carinæ entire, femoral and terminal teeth of hind femora small; hind tibiæ slightly expanded towards the extremity, the canthi compressed, spinose; first joint of hind tarsi smooth above, narrow, linear, longer than the third.

Key to the Species.

1	(14)	Lateral spine of pronotum long, pointed.	
2	(7)	Lateral spine distinctly curved forwards.	
3	(4)	Spine thick at the base	*spinilobus*, Hanc., p. 31.
4	(3)	Spine slender at the base.	
5	(6)	Space between the eyes narrower than the eye	*maculatus*, sp. n., p. 32.
6	(5)	Space between the eyes about equal to the width of an eye	*obscurus*, sp. n., p. 32.
7	(2)	Lateral spine straight or inclining backwards.	
8	(11)	Pronotum smooth.	
9	(10)	Vertex distinctly tricarinate	*tricarinatus*, Bol., p. 33.
10	(9)	Vertex with the middle carina very short, only visible in front	*indicus*, Bol., p. 33.
11	(8)	Pronotum more or less rugose or granulated.	
12	(13)	Pronotum transversely rugose	*oculatus*, Bol., p. 34.
13	(12)	Pronotum granulated	*exsertus*, Bol., p. 34.
14	(1)	Lateral lobes of pronotum short, pointed.	
15	(16)	Vertex wider than the eye	*subulatus*, Bol., p. 35.
16	(15)	Vertex not wider than the eye	*vidali*, Bol., p. 35.

21. Criotettix spinilobus, *Hanc.*

Criotettix spinilobus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 129, 155, pl. iii, fig. 12; id., Gen. Ins., Orth. Tetrig. 1906, p. 28, fig. 12.

Body slightly granulated; head scarcely elevated. Vertex nearly as broad above as one of the eyes; frontal margin

truncate, lateral carinæ curving outward and backward, the middle carina not prominent; frontal carina prominent between the antennæ; eyes globose, of moderate size. Antennæ slender, filiform, inserted between the lower angle of the eyes. Pronotum truncated in front, subulate behind, and produced about as far as the wings; above more or less granulated, and with a short abbreviated lateral carina between the shoulders; humeral angles obtuse; median carina not prominent but continuous, lateral carinæ distinct; hinder lateral angles with an acute spine, straight or slightly curved forward. Tegmina oval, obtuse at the extremity. Femora rather slender, margins entire; hind femora serrulate above; hind tibiæ with the margins armed with small spines, except on the inner margin towards the apex; first joint of hind tarsi very narrow, but scarcely longer than the third; first two pulvilli of the first joint pointed, the third obtuse.

♂. *Length* 9·8–10·3 mm.; pronotum, 8·9–9·5 mm.; tegmina, 1 mm.; posterior femur, 4·5–4·6 mm.; antennæ, 3·2–3·3 mm.

♀. *Length* 11–12·2 mm.; pronotum, 10·2–11·3 mm.; tegmina, 1·1–1·2 mm.; posterior femur, 5·2–5·7 mm.; antennæ, 4 mm.

CEYLON: Pundaluoya.

Frequents swampy ground in March.

Fig. 30.
Criotettix maculatus.

22. Criotettix maculatus, sp. nov.

Dark brown, with the process of the pronotum inclining to rufous on the borders. Antennæ long and slender, scape thickened. Pronotum and wings of about equal length, nearly as long as the hind legs,* pronotal spine slender, curved forwards. Front legs blackish, banded with grey; hind femora yellowish, varied with white on the outer side, and with blackish below; towards the base is a blackish band; hind tibiæ yellowish, darker towards the tip; tarsi whitish, with the tips of the joints blackish.

Length 11 mm.

BURMA.

Type in the British Museum.

23. Criotettix obscurus, sp. nov.

Dull brown, paler beneath, the legs transversely banded with brown and yellowish grey. Eyes large, round, the space between

* [This is correct; the artist has been misled by the wings being out of position.]

them as broad as an eye; face not prominent; antennæ slender, inserted rather below the eyes, vertex tricarinate in front, the middle carina less distinct behind. Pronotum finely granulated, as long as the wings; median carina slightly raised between the shoulders, continuous, but very finely undulating; slight lateral carinæ in front; lateral spines long, slender, curved forwards. Hind femora rugose; first joint of hind tarsi with very small pulvilli.

Length 13 mm.

MADRAS: Travancore Coast.

Type in the Indian Museum.

Fig. 31.
Criotettix obscurus.

24. **Criotettix tricarinatus**, *Bol.*

Criotettix tricarinatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 184, 223, 224; Hancock, Spol. Zeyl. ii, 1904, p. 128, pl. iii, fig. 15.

Pale grey, more or less varied with brown. Vertex distinctly narrower than the eye, carinated in the middle, with a raised curved line on each side in front. Pronotum above very obtusely tectiform, with a raised continuous middle carina; two parallel carinæ between the shoulders, obsolete before and behind; hinder process long, subulate, lateral angles with a long acute spine. Tegmina shortly ovate, with the extremities rounded. Femoral carinæ granulated, not lobate; hind tibiæ with a longitudinal brown stripe on the outer side, tibiæ ringed with brown; first joint of hind tarsi with the two basal pulvilli acutely spined at tips.

♂. *Length* 12 mm.; pronotum, 11 mm.; hind femur, 5 mm.

♀. *Length* 13–14·5 mm.; pronotum, 12–13·5 mm.; hind femur, 5·5–6 mm.

CEYLON: Pundaluoya, Kandy, Kaduganawa, Peradeniya (*Green*).

Fig. 32.
Criotettix tricarinatus.

25. **Criotettix indicus**, *Bol.*

Criotettix indicus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 581.

Reddish. Vertex slightly narrower than the eye, hardly narrowed in front, the middle carina very short, only distinct

in front; eyes globose. Pronotum narrowed on the back, slightly convex, minutely granulated, with a short carina on each side between the shoulders; lateral carinæ of the anterior section short, not well marked; middle carina behind the humeral angles slightly, if at all, depressed; hind projection of the pronotum long, subulated, but not extending to the tip of the hind tibiæ; lateral spine strongly transverse, long, pointed. Tegmina short, ovate. Wings brown, reaching, but not passing, the tip of the pronotum. Carinæ of front femora entire, those of the middle tibiæ slightly undulating; hind tibiæ beneath varied with brown and testaceous, the upper carina shortly and sharply produced at the tip; tarsi with the pulvilli of the first joint acutely spined, the third pulvillus shorter than the first two together.

♂. *Length* 7·5 mm.; pronotum, 11 mm.; hind femur, 6·5 mm.

MADRAS: Trichinopoly.

26. **Criotettix oculatus**, *Bol.*

Criotettix oculatus, Bolivar, Ann. Mus. Genova, xxxix, 1898, p. 71; id., Ann. Soc. Ent. France, lxx, 1902, p. 584.

Testaceous brown. Vertex narrower than the eye, tricarinate, the lateral carinæ slightly converging in front, the middle carina obsolete behind; eyes prominent; frontal ridge somewhat arched between the antennæ, slightly sinuate between the ocelli, sloping towards the vertex. Pronotum truncated in front, subulated behind, somewhat convex above between the shoulders, shortly bicarinate, bifossulate behind the shoulders, with the process more or less obliquely rugose, the middle carina not raised, and obsolete towards the front margin, lateral carinæ not prominent; hinder angle of the lateral lobes with an acute spine. Tegmina small, broadly rounded at the apex, coarsely impresso-punctate. Legs ringed with brown; front legs long, femora with granulated and slightly undulating carinæ; hind femora obliquely banded with grey, minutely serrated above and below; first joint of the hind tarsi with three obtuse pulvilli of nearly equal length.

♂ ♀. *Length* 9–11 mm.; pronotum, 11–14 mm.; tegmina, 1·8 mm.; middle femur, 2–2·3 mm.; posterior femur, 5–6·5 mm.

MADRAS: Kodaikanal; SUMATRA; JAVA.

27. **Criotettix exsertus**, *Bol.*

Criotettix exsertus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 583.

Colour brown above, beneath greenish-yellow varied with brown, hind femora with paler bands. Vertex narrower than the eye, expanded behind, carinated in the middle, with the carina slightly projecting in front; ocelli rounded, moderately prominent, frontal ridge moderately and regularly curved before the eyes. Pronotum

nearly smooth, behind the shoulders slightly depressed and granulated, between the shoulders slightly carinulated, with the lateral carinæ of the front part nearly parallel; the median carina continuous, slightly compressed, and (seen laterally) slightly sinuated before the humeral angles; hind process acute, extending as far as the middle of the hind tibiæ; hinder angle of the lateral lobes with a short oblique spine projecting backwards, and sinuated behind. Tegmina very small, ovate. Wings slightly longer than the tip of the pronotum, iridescent, with the margins smoky. Front and intermediate femora with the carinæ entire, slighly crenulated; hind femora slender, the outer ridges very oblique, dorsal genicular carina serrated; hind tarsi with the pulvilli of the first joint of nearly equal length.

♀. *Length* 9 mm.

MADRAS: Kodaikanal.

Fig. 33.
Criotettix exsertus.

28. **Criotettix subulatus**, *Bol.*

Criotettix subulatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 223, 227.

Ferruginous brown. Vertex (seen from above) horizontal, very narrow in front, subtriangular, broader behind than the eye; frontal ridge produced, more rounded below the antennæ, neither sinuated nor depressed. Back of pronotum with short raised ridges, middle carina continuous, somewhat raised; hinder process not extending to the tip of the hind tibiæ; hinder angles of lateral lobes acute, but not very prominent. Femora ridged, sparingly granulate; hind tibiæ rather long, very straight; first joint of hind tarsi with the third pulvillus slightly longer than the second.

♀. *Length* 11 mm.; pronotum, 14 mm.; posterior femur, 6·5 mm.

EAST INDIES (British India ?).

Type in the collection of I. Bolivar.

29. **Criotettix vidali**, *Bol.*

Criotettix vidali, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 223, 227; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 105.

Grey or ferruginous brown. Vertex slightly prominent, not broader than the eye, transversely rounded in front, carinated in the middle, and distinctly sinuated on each side; frontal carina curved between the antennæ. Pronotum distinctly transversely

convex on the back, rugulose, the middle carina slender, rather indistinct, and often obsolete between the shoulders; subulated behind; lateral spine depressed, pointed, but rather short. Hind femora entire, hind tibiæ nearly straight, first joint of hind tarsi rather longer than the third, first and second pulvillus of equal length, the third slightly longer.

Length 9 mm.; pronotum, 14 mm.; hind femur, 7 mm.

BURMA: Karen Hills; PHILIPPINES.

Genus **ACANTHALOBUS.**

Acanthalobus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 131; id., Gen. Ins., Orth. Tetrig. 1906, pp. 22, 28.

TYPE, *Criotettix miliarius*, Bol.

Range. The Oriental Region.

Body moderately stout, more or less rugose or granulated. Head not elevated; eyes moderately prominent; vertex wider than the eye, with a slight middle carina; frontal carina not prominent. Antennæ moderately short, filiform, inserted between the lower margin of the eyes. Pronotum truncate in front, extended backwards beyond the hind femora, flattened above, except between the shoulders, where it is more or less raised or undulated; lateral spines obliquely directed backwards. Tegmina ovate; wings about as long as the pronotum. Front femora entire or slightly crenulated, middle femora sometimes sublobate or denticulated. First joint of hind tarsi slightly longer than the third.

Key to the Species.

1	(2)	Wings more or less abbreviated	*cuneatus*, Hanc., p. 40.
2	(1)	Wings approximately as long as the pronotum.	
3	(4)	Pronotum granulated, but not rugose or tuberculated	*flavopictus*, Bol., p. 41.
4	(3)	Pronotum rugose or tuberculated.	
5	(10)	Lateral spine very prominent and acute.	
6	(7)	Back of pronotum deeply impresso-punctate; lateral spine directed outwards or only slightly backwards	*miliarius*, Bol., p. 37.
7	(6)	Back of pronotum finely granulated.	
8	(9)	Lateral spine directed outwards or only very slightly inclining backwards......................	*bispinosus*, Dalm., p. 37.
9	(8)	Lateral spine very obliquely directed backwards	*inornatus*, Walk., p. 39.
10	(5)	Lateral spine not very prominent, with a short acute point	*rufescens*, sp. n., p. 38.

30. **Acanthalobus miliarius**, *Bol.*

Criotettix miliarius, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 223, 226.
Acanthalobus miliarius, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 131, 132, 155, pl. ii, fig. 8; id., Gen. Ins., Orth. Tetrig. 1906, p. 29, pl. ii, fig. 19.

Yellowish or ferruginous brown, with the lateral spines and legs yellow. Vertex at least as broad as one of the eyes and almost on the same level, the bifid carina projecting somewhat in front; frontal lateral carinæ slightly curving inwards below, obsolete above. Front of pronotum above finely granulated, with a very strong middle carina and two lateral ones; on the outer side of the latter a round tubercle. Hinder lobe of pronotum convex between the shoulders, then flattened, the median carina undulated hindwards; the surface granulated, with numerous longitudinal wrinkles and small round tubercles; hinder extremity extending for about two-fifths of its length beyond the hind femora; lateral spines stout, extending obliquely backwards and acute at the extremity. Hind femora rather broad, very finely crenulated below, central area blackish; tibiæ yellow, the outer carina with about 12 small spines, the inner with 6; first joint of hind tarsi longer than the other two; the pulvilli rectangular, the second rather shorter than the first, the third the shortest. Tegmina twice as long as broad; wings about as long as pronotum, clouded iridescent, yellowish externally.

Fig. 34.
Acanthalobus miliarius.

The male is smaller and much less strongly rugose.

Length 11 mm.; pronotum, 16·5 mm.; hind femur, 7 mm.

CEYLON: Peradeniya, Kandy, Colombo.

Type in the collection of Brunner von Wattenwyl.

Found in rice-fields, &c., and comes freely to light.

31. **Acanthalobus bispinosus**, *Dalm.*

Acrydium bispinosum, Dalman, Köngl. Vet.-Akad. Handl. 1818, p. 77.
Tettix bispinosa, Dalman, Anal. Ent. 1823, p. 86; Stål, Recens. Orth. i, 1873, p. 150.
Criotettix bispinosus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 223, 226; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 105.
Acridium (Tetrix) bispinosum, De Haan, Temminck, Verhandel., Orth. 1842, pp. 166, 169.

Tettix pallitarsis, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 822.
Tettix armigera, Walker, *l. c.* 1871, p. 826.
Tettix latispina, Walker, *l. c.* 1871, p. 837.

Yellowish grey or fusco-ferruginous, finely granulated. Vertex rather below the level of the eyes, as broad behind as an eye, but narrowed in front, the bifid carina slightly projecting between the yellowish antennæ; frontal carina not prominent, and obsolete below; cheeks with carinæ only visible below; mouth black, palpi white. Pronotum finely granulated, nearly flat, the median carina indistinct, nearly obsolete in front; two slightly marked lateral carinæ on the frontal area, beyond which there are no lateral carinæ; lateral spine yellow, acute, straight, or very slightly inclining backwards, sometimes tipped with black. Pronotum subulated behind, the tip obtuse, extending for two-fifths of its length behind the hind femora. Pectus spotted with brown; abdomen blackish, spotted with white. Tegmina broadly oval, about $1\frac{1}{2}$ times as long as broad. Wings as long as the pronotum, iridescent towards the base; costa and inner margin brown, and hind margin broadly clouded with brown. Hind femora and tibiæ black, more or less spotted with white; tarsi white, tipped with black; hind tibiæ with a strong notch on the upper side before the knee, and with 6 spines on the outer and 8 on the inner carina; first joint of tarsi about as long as the other two; pulvilli small, triangular, of about equal length.

Length 16–21 mm., to end of ovipositor, 11–12 mm.; hind femur, 9 mm.; expanse of wing, 30 mm.

BURMA: Karen Hills; CHINA: Hong Kong; SUMATRA; BORNEO.

Type in Dalman's collection, now in the Stockholm Museum. Types of Walker's species in the British Museum.

A common and well-marked species, but the descriptions, except Dalman's, are very unsatisfactory. Bolivar writes: "inter humeros convexiusculo, *rugis linearibus, abbreviatis, subseriatis*"; the last four words hardly apply to any of the specimens before me.

Fig. 35.—*Acanthalobus rufescens.*

32. Acanthalobus rufescens, sp. nov.

Uniform reddish brown, hind femora obscurely banded with dull yellow, and a broad pale ring at the base of the hind tibiæ, but these paler markings very indistinct. Eyes large, slightly approximating in front, separated by about the width of an eye; antennæ inserted rather below the level of the eyes, long and slender. Head and pronotum finely granulated above;

median carina continuous, slightly raised behind the shoulders; lateral carinæ slightly marked in front, parallel; lateral angles very acute, hardly spined, and directed slightly backwards; pronotal process as long as the wings, much longer than the hind femora, very slightly bifid at the extremity. Tegmina oval, twice as long as broad. Hind tibiæ slightly waved, with small spines; joints of hind tarsi long, the first joint slightly longer than the rest; pulvilli conspicuous, pointed behind.

Length 16–23 mm.

SIKKIM: Gantok, 6050 ft., 10. xi. 1900, Kurseong, 5000 ft., 14. viii. 1909; BENGAL: Calcutta, 28. vii. 1904.

33. **Acanthalobus inornatus**, *Walk.*

Tettix inornata, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 834.
Criotettix saginatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 223, 225; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 104, pl. v, fig. 38.

Rather slender, brown, rugulose. Vertex distinctly broader than the eye, the double carina projecting slightly between the antennæ. Top of head flattened; cheeks with lateral carinæ, obsolete above and slightly converging below; eyes not raised; face varied with tawny. Pronotum with three strong keels on the frontal area, the lateral ones slightly converging and obsolete behind; as long as the hind wings, subulate, and extending for nearly half its length beyond the hind femora; lateral spines pale, rather slender at the extremity and slightly hooked backwards; pronotum rather arched on the back between the shoulders, depressed behind, with numerous raised granules, more or less regularly arranged; middle carina rather indistinct and irregular, and with some short, raised, incomplete carinæ opposite the shoulders. Tegmina forming a long oval; wings dusky along the costa. Middle and hind tibiæ pale, the latter slightly expanded, and with 7 spines on the terminal half of the outer carina and 4 on the inner; there are also two strong outer and one inner terminal spine, and a small spine on the upper surface of the tibia just beyond the knee; first joint of hind tarsi rather longer than the rest together; the three pulvilli triangular, of equal length. Valves of ovipositor pale, long and slender, the upper one denticulated above, with the tip slightly hooked upwards; the lower ones denticulated below, the tip slightly hooked downwards; at the base of the lower ones is a slight tooth above and another about the middle. Abdomen blackish, spotted with ochreous.

Fig. 36.—*Acanthalobus inornatus.*

Length, to end of ovipositor, 14 mm.; to end of pronotum, 22 mm.; hind femur, 10 mm.; breadth between lateral spines, 6 mm.

BURMA: Rangoon; JAVA.

Type in British Museum; those of *C. saginatus* in the collections of Bolivar and Brunner von Wattenwyl.

Walker speaks of "three spines on each side," but this appearance is evidently an optical illusion. *Criotettix saginatus* of authors appears to agree with the species above described, but the dimensions given are slightly smaller.

34. **Acanthalobus cuneatus**, *Hanc.*

Acanthalobus cuneatus, Hancock, Spol. Zeyl. ii, 1904, p. 108.
Acanthalobus miliarius cuneatus, Hancock, *l. c.* 1904, p. 133.

Perhaps a brachypterous form of *A. miliarius*. "The pronotum differs in being more rugose and more cuneate posteriorly, the

Fig. 37.—*Acanthalobus cuneatus.*

Fig. 38.—*Acanthalobus cuneatus*, ♂. Fig. 39.—*Acanthalobus cuneatus*, ♀.

apex extending not more than two millimetres beyond the femoral knees, and not a little passing the wings. The median carina of

pronotum posteriorly irregularly sinuate. Wings more or less abbreviate."

CEYLON: Colombo.

35. Acanthalobus flavopictus, *Bol.*

Criotettix flavopictus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 582.

Greyish brown, with pale markings, abdomen spotted with yellow. Vertex slightly narrower than the eye, carinated in the middle; frontal ridge between the antennæ somewhat compressed. Pronotum smooth on the back, somewhat raised between the shoulders, behind them bifoveolate, irregularly granulose; middle carina slender, continuous; prozona carinated on each side, with the carinæ converging behind; hinder process long and pointed, the deflexed lobes very finely granulated with white, the lateral spine acute. Tegmina oblong-ovate, roundly truncate behind. Wings long, brown towards the margins, with parallel nervures. Four front femora very finely crenulated; lower carinæ of the middle legs rather indistinctly bilobate, upper carina of the hind femora 3- or 4-denticulate, with the upper external and internal areas with rows of obtuse tubercles; hind tibiæ slightly waved, pulvilli of the tarsi acute.

Length 12 mm.; pronotum, 17 mm.; hind femur, 7·5 mm.

MADRAS: Kodaikanal.

Resembles *A. miliarius* and *spinosus*. Differs from the former in its narrower vertex and smooth pronotum, and from the latter by the depressions on the pronotum, which make it resemble a *Gavialidium*, but that the median carina is straight and not depressed.

Genus LOXILOBUS.

Loxilobus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 134; id., Gen. Ins., Orth. Tetrig. 1906, pp. 22, 29.

TYPE, *Loxilobus acutus*, Hanc.

Range. Oriental and Austro-Malayan Regions.

Body slender, scabrous or granulated. Head slightly higher than the eyes, vertex about as wide as the eyes, frontal costa rounded, projecting in front. Pronotum raised between the shoulders, middle carina slightly sinuated, hinder process longer than the hind femora, or abbreviated, lateral lobes produced. Tegmina oblong; wings more or less developed. Femora with very small spines, hind tibiæ spined; first and third tarsal joints of nearly equal length, the three pulvilli also equal.

Key to the Species.

1 (2) First and second pulvilli of the first joint of the hind tarsi pointed .... *assamus*, Hanc.
2 (1) All the pulvilli of the first joint of the hind tarsi flattened.
3 (4) Wings and pronotal process extending backwards beyond the hind femora .. *acutus*, Hanc.
4 (3) Wings and pronotum shorter, not extending to the extremity of the hind femora .... *hancocki*, Kirby.

36. **Loxilobus acutus**, *Hanc.*

Loxilobus acutus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 134; id., Gen. Ins., Orth. Tetrig. 1906, p. 29, pl. ii, fig. 17.

Body slender, granulated. Vertex about as wide as an eye, narrowed towards the front, carinated in front in the middle and pitted at the sides, vertex scarcely higher than the eyes, frontal carina rounded and projecting between the eyes, which are small and rounded. Antennæ slender, inserted between the lower third of the eyes. Pronotum truncate in front, extending behind beyond the hind femora, back rugose and granulated, convex between the shoulders, anterior carinæ distinct, hardly converging behind, humeral angles distinct, lateral carina not conspicuous, median carina continuous, very slightly waved, lateral angles acute, projecting outwards and backwards. Tegmina ovate; wings projecting beyond the pronotum. Front femora unarmed, hind femora with the margins crenulated, and a small tooth before the extremity; hind tibiæ crenulated and spinose; outer margin with ten spines; first joint of hind tarsi rather longer than the third; the third pulvillus longest, and flat below. Upper blade of ovipositor stout, strongly denticulated.

Length 15·8 mm.; pronotum, 13·8 mm.; hind femur, 6·2 mm.

CEYLON: Pundaluoya (*E. E. Green*). Taken at light in May.

Fig. 40.
Loxilobus hancocki.

37. **Loxilobus hancocki**, *Kirby.*

Loxilobus rugosus, Hancock (*nec* Bolivar), Spol. Zeyl. ii, 1904, pp. 108, 134, 135, 155, pl. iii, fig. 17; id., Gen. Ins., Orth. Tetrig. 1906, p. 30.
Loxilobus hancocki, Kirby, Syn. Cat. Orth. iii, 1910, p. 18.

Body greyish brown, thickly granulated, and somewhat rugose. Vertex scarcely higher than the eyes,

with a median carina. Middle carina of pronotum continuous, slightly elevated between the shoulders, lateral carinæ reddish brown. Wings and pronotum scarcely extending as far as the tips of the abdominal appendages, and not nearly so far as the ends of the hind femora. Abdomen with a small tooth above before the base of the abdominal appendage; the latter is denticulated beneath, and slightly hooked at the extremity. Four anterior femora unarmed, the front ones flatter and shorter than the middle ones; hind femora rather stout, and truncated at the extremity, with a row of nodules on the outer upper area; hind tibiæ serrated above, and with long terminal spines; pulvilli of hind tarsi indistinct.

Length $7\frac{1}{2}$–10 mm; of pronotum, $6\frac{1}{2}$–9 mm.; hind femur, 5–6 mm.

CEYLON: Pundaluoya.

Frequents grass-lands and swampy places in March and May.

38. **Loxilobus assamus**, *Hanc.*

Loxilobus assamus, Hancock, Trans. Ent. Soc. Lond. 1907, p. 223.

Small; ashy grey or ferruginous, often varied with brown. Vertex narrowed in front, and longitudinally sulcate on each side. Pronotum truncated in front, produced behind to the extremity of the hind femora; tuberculose on the back, median carina somewhat waved, and slightly elevated in front. First and second pulvilli of the first joint of the hind tarsi pointed. Tegmina long, rounded at the tips; wings rather shorter than the pronotum.

Dimensions not stated.

ASSAM: Cherrapunji.

Type in the Oxford Museum.

Group IV. *METRODORINI.*

Key to the Genera.

1	(8)	Tegmina and wings present.	
2	(3)	Pronotum with an acute lateral spine	LAMELLITETTIX, Hanc., [p. 49.
3	(2)	Pronotum with no acute lateral spine.	
4	(5)	Vertex narrower than half the width of the eye	SYSTOLEDERUS, Bol., [p. 44.
5	(4)	Vertex about as broad as the eye.	
6	(7)	Body stout, posterior angle of lateral lobes of pronotum truncated	MAZARREDIA, Bol., p. 50.
7	(6)	Body slender, posterior angle of lateral lobes of pronotum rounded.	XISTRA, Bol., p. 55.
8	(1)	Tegmina and wings absent or rudimentary.	
9	(12)	Lateral lobes obtusely angulated.	

10 (11) Body and legs setose .... HANCOCKIA, g. n., p. 46.
11 (10) Body and legs bare .... APTEROTETTIX, Hanc., [p. 47.
12 (9) Lateral lobes with wing-like expansions .... EURYMORPHOPUS, Hanc., [p. 48.

Genus SYSTOLEDERUS, *Bol.*

Systolederus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 194, 234; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 136; id., Gen. Ins., Orth. Tetrig. 1906, pp. 30, 33.

TYPE, *Systolederus haani*, Bol., from the Philippines.

Range. Oriental Region, Celebes.

Head considerably higher than the pronotum; eyes large, closely approximating above, and higher than the vertex; antennæ slender, placed below the level of the eyes; frontal carina slightly projecting between them; face sinuous; palpi filiform. Pronotum flattened above, acuminate behind, extending considerably beyond the hind femora; median carina indistinct, except in front. Tegmina oval; wings as long as the pronotum. Four front legs simple; hind tibiæ spinose, terminal spines small; first and third joints of tarsi of nearly equal length.

Key to the Species.

1 (2) First two pulvilli of the first joint of the hind tarsi of equal length, the third longer .... *cinereus*, Brunn., p. 44.
2 (1) All three pulvilli of equal length.
3 (4) Process of pronotum produced considerably beyond the hind femora .... *greeni*, Bol., p. 45.
4 (3) Process not or scarcely reaching apex of hind femora .... *anomalus*, Hanc., p. 46.

39. Systolederus cinereus, *Brunn.*

Systolederus cinereus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 105.

♀. Uniform ashy grey. Vertex very narrow; eyes moderately prominent; antennæ inserted before the eyes. Pronotum very

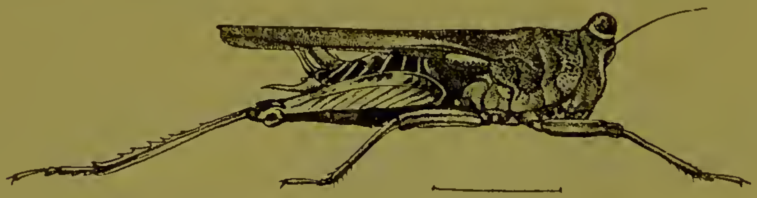


Fig. 41.—*Systolederus cinereus.*

smooth and flat, the median carina inconspicuous, very straight, the marginal carinulæ short in front, the deflexed lobes acuminate,

obliquely truncated, the terminal process tricarinated to the extremity. Four front femora compressed, not waved; hind femora with the carina acute, and the oblique rugulæ inconspicuous; first joint of hind tarsi with three pulvilli of equal length.

Length 10 mm.; pronotum, 13 mm.; hind femur, 9 mm.

BURMA: Karen Hills.

Type in the Geneva Museum.

40. **Systolederus greeni**, *Bol.*

Systolederus greeni, Bolivar, Ann. Soc. Ent. France, lxx, 1892, p. 584; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 137, 155, pl. ii, fig. 9; id., Gen. Ins., Orth. Tetrig. 1906, p. 34, pl. ii, fig. 14.

Greyish brown. Eyes much elevated; only separated above by the median carina of the vertex; antennæ inserted below the eyes, with the frontal carina slightly projecting between the scapes; below the antennæ a distinct indentation. Pronotum finely granulated, slightly constricted between the shoulders, and very slightly raised; lateral angles almost rounded off; median carina strongly marked in front and straight; behind less conspicuous

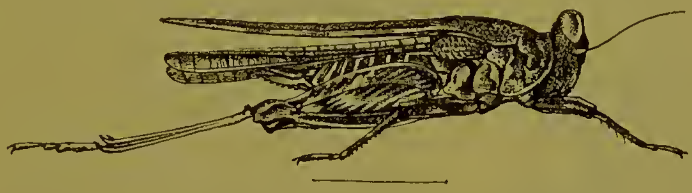


Fig. 42.—*Systolederus greeni.*

and undulating; lateral carinæ obsolete in front, and before the extremity; deflexed lobes rather pointed, but not produced; hinder process of pronotum extending considerably beyond the hind femora, and shortly bifid at the extremity. Wings extending to the tip of the pronotum. Abdomen ringed with whitish, with one or two small teeth above near the extremity; abdominal appendages of female straight, crenulated, not hooked at the tip. Legs more or less varied with grey; four front legs compressed, simple; hind femora with oblique wrinkles, hind tibiæ minutely crenulated, with curved terminal spines; first joint of hind tarsi longer than the third, the first two pulvilli of equal length, the third considerably longer.

Length, body, 7–14 mm.; pronotum, 10½–14 mm.; hind femur, 5–6½ mm.

MADRAS: Kodaikanal; CEYLON: Pundaluoya, Kaduganawa.

Types in the collections of Pantel and Bolivar.

Taken on dry rocks away from water in January and March.

41. **Systolederus anomalus**, *Hanc.*

Systolederus anomalus, Hancock, Spol. Zeyl. vi, 1910, p. 146.

Body rugose, varied with brown. Eyes only slightly prominent; vertex nearly half the width of one of the eyes. Pronotum truncate anteriorly, not quite reaching the eyes; rugose and slightly tuberculate above, with the median carina waved, lateral lobes slightly oblique, posterior angles acutely angulated, but not spined, posterior process not reaching the tip of the hind femora. Tegmina narrow, elliptical; wings not reaching the end of the pronotal process. Front and middle femora entire, rather long; hind femora thickened; first and third joints of hind tarsi of nearly equal length, and the three pulvilli of the first joint nearly equal.

Length 7–9·5 mm.

CEYLON: Madulsima, 8. viii. 1908 (*T. B. Fletcher*).

Genus **HANCOCKIA**, nov.

TYPE, *Hancockia portentosa*, sp. n.

Range. S. India.

Body stout, pubescent, apterous. Antennæ very slender, inserted below the eyes; head projecting between and below the eyes, which are separated by a space more than twice their width. Pronotum gibbous between the shoulders, and with three undulations behind; much raised, carinated, finely denticulated, and very rugose behind; longer than the abdomen; shoulders not much widened, lower lateral margins ovally sublobate outwardly, slightly depressed. All the femora much widened and thickened, very coarsely dentate-carinate above; front and middle tibiæ short, expanded; hind tibiæ long, slender, denticulated above, and with two short terminal spines; first joint of tarsi longer than the third, pulvilli small.

A very remarkable genus, resembling, in profile, Hancock's figure of the South-American *Platytettix reticulatus*, but without the projecting shoulder-spines.

Fig. 43.
Hancockia portentosa.

42. **Hancockia portentosa**, sp. nov.

Uniform blackish brown, very rugose and pubescent, apterous; appendage to pronotum rather longer than the head and fore-part together, and obtusely rounded at the extremity; abdomen shorter than the pronotum.

Length 13 mm.; width at shoulder, 4 mm.; at lower lateral expansions, 6½ mm.

MADRAS: Maddathoray and Tenmalai, Travancore, W. base of W. Ghats.

Type in British Museum.

Genus APTEROTETTIX.

Apterotettix, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 140; id., Gen. Ins., Orth. Tetrig. 1906, pp. 30, 35.

TYPE, *Apterotettix obtusus*, Hanc.

Range. Ceylon.

Body granular, apterous or with very slight traces of tegmina and wings. Vertex scarcely higher than the eye; antennæ rather long and slender, inserted just below the level of the eyes; the frontal carinæ slightly projecting between the eyes, and the face slightly oblique below the antennæ. Pronotum with a strong

Fig. 44. –*Apterotettix obtusus*.

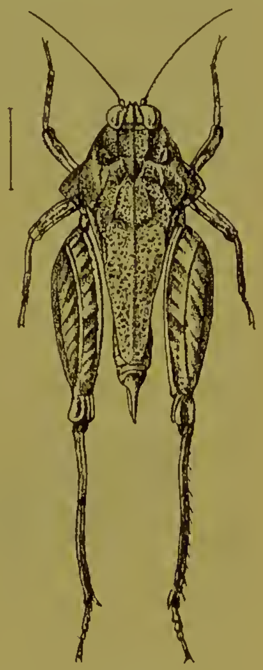


Fig. 45.
Apterotettix obtusus.

continuous median carina, and with a more or less distinct carinula from the base to the middle of the total length; base truncate, lateral angles nearly rounded off, extremity entire, shortly rounded, generally shorter than the abdomen; lower lateral angles obtusely angulated. Hind tarsi spinose.

43. **Apterotettix obtusus**, *Hanc.*

Apterotettix obtusus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 140, 155, pl. iii, fig. 13; id., Gen. Ins., Orth. Tetrig. 1906, p. 31, fig. 16.

Brown, more or less varied with grey beneath and on the legs. Vertex about equal in width to one of the eyes, and with a strong median carina; eyes moderately large and prominent. Pronotum generally shorter than the abdomen and hind femora. Hind femora with transverse wrinkles on the upper outer area; hind tibiæ spinulose above, and with strong terminal spines; joints of tarsi slender, the second joint and terminal claw black; pulvilli inconspicuous.

Length 6–9 mm.; pronotum, $4\frac{1}{2}$–6 mm.; hind femur, $4\frac{1}{2}$–5 mm.

CEYLON: Peradeniya, Pundaluoya.

Found in grass-fields in February, March, May, and December.

Genus **EURYMORPHOPUS**.

Eurymorphopus, Hancock, Gen. Ins., Orth. Tetrig. 1906, pp. 30, 35.

TYPE, *Amorphopus cunctatus*, Bol.

Range. Ceylon, New Caledonia.

Body stout, depressed, granulated, apterous. Vertex on a level with the eyes, frontal carina very slightly projecting between the antennæ, the face beneath almost perpendicular; vertex much

Fig. 46.—*Eurymorphopus latilobus.*

Fig. 47.
Eurymorphopus latilobus.

narrowed in front, antennæ very short, inserted below the eyes; face and cheeks broad, rounded. Pronotum with the median and lateral carinæ well-marked and continuous, except that the lateral

carinæ curve inwards to the extremity of the frontal area, on which they are obsolete, though there is a slight carina in front on each side of the median carina ; pronotum pointed at extremity, extending about as far as the abdominal appendages, and with very large wing-like lateral expansions. Hind femora very stout and rounded above, spines of hind tibiæ very small.

44. **Eurymorphopus latilobus**, *Hanc.*

Eurymorphopus latilobus, Hancock, Spol. Zeyl. v, 1908, pp. 113, 114, fig. 1.

Body short and broad, thickly granulated. Eyes large, the vertex above triangular, and narrowed in front till there is only space for the not very prominent carina, which is only bifid for a short distance between the antennæ ; below the antennæ it is just perceptible as a slight elevation to the extremity of the clypeus. The wing-like lateral expansions of the pronotum are very conspicuous. The stout hind femora have oblique wrinkles on the upper outer area, and much longer oblique striæ on the lower outer area ; the under surface bounded by the two lower carinæ is flat, and black ; hind tibiæ with small terminal spines, and the spines on the upper surface minute ; pulvilli on the under surface of the first joint of the tarsi very inconspicuous.

Length 9 mm. ; hind femur, 5 mm.

CEYLON : Andugoda, ix. 1907 (*E. E. Green*).

"Frequents the surface of dry rocks in the shade of the jungle" (*Green*).

Genus **LAMELLITETTIX.**

Lamellitettix, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 125 ; id. Gen. Ins., Orth. Tetrig. 1906, pp. 31, 41.

TYPE, *Lamellitettix acutus*, Hanc.

Range. Ceylon.

Body stout, very rugose and gibbous. Head not prominent ; antennæ long and slender, placed below the eyes, the frontal costa slightly produced between them ; the face below sinuated ; vertex slightly wider than the eye. Pronotum truncated in front, pointed at the extremity, and extending beyond the hind femora and abdomen ; lateral angles triangular, laminated, and pointed at the extremity ; median line strongly humped between the shoulders, and undulated behind to two-thirds of the length of the pronotum. Tegmina oval ; wings well developed. Front tibiæ with a few spines beneath ; hind tibiæ with some above ; hind femora finely denticulated above, with a notch before the pointed terminal spike ; terminal spine of hind tibiæ small ; first and third joints of hind tarsi of equal length ; pulvilli flat below.

45. **Lamellitettix acutus**, *Hanc.*

Lamellitettix acutus, Hancock, Spol. Zeyl. ii, 1904, pp. 107, 126, 154, pl. ii, fig. 6; id., Gen. Ins., Orth. Tetrig. 1906, p. 42, pl. ii, fig. 21.

Body brown, rugose. Vertex about as wide as one of the eyes, not raised; antennæ long and slender, with the carina projecting between them. Pronotum gibbous between the shoulders, and undulated behind; a strong triangular lamellated lateral projection ending in a sharp spine. Abdomen about as long as the hind femora, but the appendages extending beyond for half the distance to the extremity of the pronotum, which is pointed, and about as long as the wings. Front tibiæ with a few small spines below, and hind tibiæ with a few above.

Length, body, 14·3 mm.; pronotum, 13·4 mm.; hind femur, 7 mm.

Ceylon: Maskeliya.

Taken from the stem of a tree in the jungle.

Genus **MAZARREDIA**.

Mazarredia, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 185, 194, 236; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 138; id., Gen. Ins., Orth. Tetrig. 1906, pp. 32, 42.

Type, *Mazarredia geminella*, Bol.

Range. Oriental Region, New Guinea, Fiji.

Head not prominent, vertex about as wide as one of the eyes, often narrowed in front, on each side with an oblique more or less compressed carina, face slightly oblique; frontal carina scarcely forked behind the eyes, in front scarcely diverging, slightly projecting between the antennæ, which are long and slender, and inserted slightly in front of the eyes; maxillary palpi with the terminal joints narrow, subcompressed. Pronotum smooth above, truncated in front, and often humped between the shoulders, with obtuse humeral angles, the apex long and pointed; hind margin of the lateral lobes more or less laminated externally, distinctly truncated, and acutely angulated, but not spinose, very rarely depressed. Tegmina ovate; wings perfectly developed. Legs long; front femora somewhat compressed, carinated above, carinæ entire or slightly waved; hind tibiæ slightly expanded towards the tips, and spinose; first and third joints of hind tarsi of equal length.

Key to the Species.

1 (10) Vertex not or scarcely broader than the eye.
2 (5) Median carina not crested nor sinuated behind the shoulders.
3 (4) Last two joints of palpi concolorous. *sculpta*, Bol., p. 51.
4 (3) Last two joints of palpi yellow .... *convergens*, Brunn., p. 52.

5 (2) Median carina crested or sinuated behind the shoulders.
6 (7) Median carina with a high raised crest . . . . *cristulata*, Bol., p. 52.
7 (6) Median carina slightly crested, or with very unequal elevations and depressions.
8 (9) Median carina slightly crested . . . . . . *insularis*, Bol., p. 52.
9 (8) Median carina with very unequal elevations and depressions . . . . *inæqualis*, Brunn., p. 53.
10 (1) Vertex about twice as broad as the eye . . . . *lativertex*, Brunn., p. 54.

Species incertæ sedis: *insignis*, sp. n., *lugubris*, sp. n.

46. Mazarredia sculpta, *Bol.*

Mazarredia sculpta, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 237, 238; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 107.

Greyish brown. Head not prominent, eyes scarcely higher than the pronotum, vertex rather broader than the eye, somewhat narrowed in front, frontal carina produced between the antennæ; palpi concolorous, slightly depressed. Pronotum smooth above, convex and bicarinated behind the shoulders, the marginal carinulæ slightly converging behind; the median carina depressed

Fig. 48.—*Mazarredia sculpta.*

behind the shoulders, then straight and very narrow; hinder angle of the lateral lobes slightly produced and obtuse; hinder lobe of pronotum produced. Front femora with the carinæ slightly waved; hind femora obliquely rugose externally, with rows of tubercles above; the carinæ entire; hind tibiæ slightly spinose and unicolorous brown; pulvilli of first joint of hind tarsi of equal length.

Length, body, 11·5–13·5 mm.; pronotum, 14·5–18·5 mm.; hind femur, 7·5–8·5 mm.

Burma: Karen Hills, Pegu, Palon; Tenasserim: Thagata.

Type in the collection of Brunner von Wattenwyl.

47. **Mazarredia convergens**, *Brunn.*

Mazarredia convergens, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 107, pl. v, fig. 40.

Colour varied with dark brown. Vertex scarcely broader than the eye, with the lateral lobes much lower than the eye; antennæ inserted nearly between the eyes; ocelli placed midway between the eyes; frontal carina slightly sinuated at the ocelli; two terminal joints of palpi yellow. Pronotum with the front marginal carinæ distinctly converging behind, the disc nearly smooth, with longitudinal wrinkles, but without tubercles, the median carina slightly interrupted between the shoulders; hinder angle of the lateral lobes truncated at the tip; humeral sinus rather acute. Tegmina of usual form. None of the femoral carinæ undulated.

Length, body, 11·7–14·5 mm.; pronotum, 13–15 mm.; hind femur, 6·8–8·2 mm.

BURMA: Karen Hills; TENASSERIM.

48. **Mazarredia insularis**, *Bol.*

Mazarredia insularis, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 237, 239; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 138, 155, pl. ii, fig. 7.

Body moderately slender, ferruginous brown. Eyes globose, rather prominent, higher than the vertex, which is rather broader than one of the eyes; antennæ slender; face rather oblique. Pronotum rugose, slightly raised in front, the median line with a concavity behind the shoulders, and then distinctly crenulated; hinder part of pronotum tricarinated, pointed, and extending considerably beyond the abdomen and hind femora; lateral angles pale, somewhat laminate, rectangularly pointed at the extremity. Tegmina oval; wings as long as the pronotum. Hind femora with the outer surface scabrous, the upper area with large rounded tubercles, the disc with strong oblique wrinkles; front tarsi black, orange in the middle; hind tibiæ denticulated on the upper surface; the pulvilli of the first joint of the hind tarsi small.

Length, body, 9–12 mm.; pronotum, 9–11 mm.; hind femur, 4·5–6 mm.

CEYLON: Pundaluoya, Hantanna, Peradeniya.

Collected "from stems of *Grevillea* tree in May; a male from Hantanna was taken in March. Mr. Green remarks that the living insects are often coloured like and harmonize with the natural lichens and mosses, being very inconspicuous" (*Hancock*).

49. **Mazarredia cristulata**, *Bol.*

Mazarredia cristulata, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 584.

Greyish brown. Head not raised; eyes prominent; vertex rather broader than the eye, not narrowed in front, and hardly

obliquely elevated, produced in the middle in front, the sides reflexed-angulate; frontal carina compressed between the antennæ, moderately raised, suddenly sinuated and depressed behind the antennæ. Pronotum depressed, granulose and impresso-punctate, the median carina raised into an entire compressed crest on the front margin, not crenulated, behind the shoulders waved and sinuated; hinder process very long, hinder angle of lateral lobes forming a short, narrow, rounded, oblique lobe. Tegmina ovate, impresso-punctate. Wings as long as the pronotum, brown externally, with transverse pale nervures. Front femora compressed, with granulated carinæ; intermediate femora above the carina compressed, granulate, lower before the tip, a lobate crenulated carina towards the tip beneath; hind femora with the upper carina almost entire, crenulated, the upper outer area with a row of raised tubercles, with a larger wrinkle scarcely behind the middle; tibiæ nearly straight, brown, with the tip ferruginous; third joint of hind tarsi shorter than the first, the third pulvillus produced.

Length, body, 7 mm.; pronotum, 13 mm.; hind femur, 4·8 mm

MADRAS: Madura.

50. **Mazarredia inæqualis**, *Brunn.*

Mazarredia inæqualis, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 106, pl. v, fig. 39.

Fig. 49.
Mazarredia inæqualis.

Vertex slightly broader than the eye, with a small lobule on each side, not higher than the level of the eye. Antennæ inserted in front of the eyes, each joint with a pale ring at the extremity. Frontal costa compressed, regularly rounded in profile; anterior marginal carinæ of the pronotum slightly diverging behind, the disc with very unequal tubercles and depressions, raised between the shoulders, and the median carina interrupted at that point; process smooth; deflexed lobes with the hinder angle little produced, rounded off at the tip, the humeral sinus rounded. Tegmina oblong-ovate. Four front femora sinuated above and below; hind femora not compressed, the carinæ not sinuated, but with paler markings; hind tibiæ with pale bands. Subgenital lamina of the male, as seen in profile, compressed at the base and very rotund-produced.

Length, body, 10·5–11·2 mm.; pronotum, 17·2–17·8 mm.; hind femur, 5·7–6·8 mm.

BURMA: Karen Hills.

51. Mazarredia lativertex, *Brunn.*

Mazarredia lativertex, Brunner, Ann. Mus. Genova, xxxiii, 1893, pp. 106, 108, pl. v, fig. 41.

Brownish testaceous. Vertex compressed from the front, nearly twice as broad as one of the eyes; antennæ inserted in front of the eyes, unicolorous; ocelli placed before the middle of the eyes; frontal costa, seen in profile, hardly sinuated Front marginal carinæ of the pronotum slightly converging behind; the disc smooth, slightly excavated, the process tricarinated to the tip; the lateral lobes rotund-truncate. Femora not sinuated; hind femora compressed.

Length, body, 11 mm.; pronotum, 14·7 mm.; hind femur, 7 mm.

Burma: Karen Hills, 4700-5000 ft.

[The two species which follow here, *M. insignis* and *M. lugubris*, spp. n., were labelled and placed by Mr. Kirby in the British Museum collection under *Xistra*. *M. insignis* has the posterior angle of the lateral lobe of the pronotum *very* slightly truncate. *M. lugubris* has the lobe scarcely prominent and slightly rounded. They seem to be connecting links.]

52. Mazarredia insignis, sp. nov.

Fig. 50.
Mazarredia insignis.

Dark brown, inclining to black on the head and face, the sides of the body greyish; palpi and basal joints of the antennæ reddish. A slight projection in profile between the antennæ; labrum shining black; eyes separated by more than the width of one. Pronotum somewhat rugose, extending considerably beyond the abdomen and as long as the wings; middle carina well marked, with a short parallel carina on each side in front. Tegmina oval, about twice as long as broad. Front and middle femora slightly compressed and widened; hind femora moderately thickened, entire; hind tibiæ with small regular spines above, first joint of hind tarsi apparently rather shorter than the third. Valves of the ovipositor serrated above and below.

Length 19 mm.

United Provinces: Kumaon, Bhim Tal, 4500 ft., 22–27. ix. 1906.

Type in the British Museum.

Fig. 51.
Mazarredia lugubris.

53. **Mazarredia lugubris**, sp. nov.

Dull brownish black. Antennæ slender, placed just below the eyes; eyes narrowed in front, where they are separated by about the width of one of them, the head between slightly convex; palpi concolorous; labrum shining black. Pronotum nearly as long as the wings, finely granular, rugose hindwards, with no lateral carinæ, the middle carina well-marked in front, and regularly but shallowly undulated behind. Hind femora on the inner side rufous brown, smooth; on the outer side with a raised carina dividing the central area into two nearly equal parts; hind tibiæ with short spines above and very strong terminal spines.

Length 16 mm.

INDIA.

Type in the British Museum.

Genus **XISTRA**.

Xistra, Bolivar, Ann. Soc. Ent. Belg. xxvi, 1887, pp. 186, 194, 242; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 242; Hancock, Gen. Ins., Orth. Tetrig. 1906, pp. 32, 45.

TYPE, *Xistra gogarzea*, Bol.

Range. The Oriental Region.

Head moderately depressed; vertex usually depressed, with oblique carinæ more or less compressed in front, and slightly converging behind, often acutely produced; eyes higher than the vertex, face oblique, frontal costa forked behind the eyes, the branches slightly diverging in front; slightly compressed and elevated between the antennæ; antennæ inserted scarcely before the eyes, long and filiform; palpi not dilated. Pronotum narrow, truncate in front, with a long process behind, humeral angles obtuse; hinder angle of the lateral lobes slightly, if at all, produced outwards, narrow, snbrotund-truncate. Tegmina ovate; wings perfectly developed. Legs long, front femora compressed, carinate above, hind tibiæ towards the tip not, or slightly, expanded, carinæ sparingly dentated; first joint of hind tarsi nearly equal to, or slightly longer than, the third.

Key to the Species.

Vertex with an acute spine on each side .... *stylata*, Hanc.
Vertex simply carinate .... *dubia*, Brunn.

54. Xistra stylata, *Hanc.*

Xistra stylata, Hancock, Trans. Ent. Soc. Lond. 1907, p. 231.

Ferruginous. Head compresso-elevated, sinuated in profile; vertex concave in front, but the oblique lateral carinulæ forming an acute spine on each side about four-fifths of the height of the eye; hinder ocellus placed barely below the eyes, but antennæ inserted far below; frontal costa not much raised between the antennæ, but rather widely sulcate and evenly divergent forwards to the median ocellus. Pronotum granulated, extending behind beyond the hind femora, raised, and with a slightly dentated crest between the shoulders; median carinæ slightly marked, humeral angles obtuse, the lateral carinæ continued forward at the shoulders, anterior lateral carinæ parallel; posterior angles of lateral lobes subangulate, slightly reflexed, subrotund-truncate. Tegmina rather long, rounded at the tips, externally punctate, brown, with pale tips; wings extending to the tip of the pronotum. Four front femora rather long, the carinæ compressed and waved, upper carina of the middle femora with an apical spine; hind femora rather long, with a short acute spine; pulvilli of first joint of hind tarsi of equal length.

Length 16·2 mm.; pronotum, 15 mm.; hind femur, 5·9 mm.

Ceylon: Putlam.

Type in the Oxford Museum.

55. Xistra (?) dubia, *Brunn.*

Xistra (?) *dubia*, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 108, pl. v, fig. 42.

Vertex as broad as the eye, sloping, with a raised carinula on each side, rising just above the eye when viewed from the front; frontal costa produced between the antennæ, not sinuated; antennæ as long as the pronotum, inserted much before the eyes; ocelli placed in a line between the base of the eyes. Pronotum produced beyond the hind femora, the front marginal carinæ parallel, the lateral lobes appressed, obliquely truncated, the humeral sinus rectangular, the median carina continuous, biundulate at the shoulders in profile, the process with the lateral carinæ very slightly sinuated above the tegmina. Wing as long as the pronotum. Four front femora undulated above and below; hind femora stout, not compressed; first and third joints of hind tarsi of equal length.

Length 7·5–10·5 mm.; pronotum, 9·2–10·5 mm.; hind femur, 5–5·5 mm.

Burma: Karen Hills.

Group V. *ACRYDIINI.*

Key to the Genera.

[1 (10)	Pronotum very long and rather narrow, the posterior prolongation very narrowly cuneiform, the apical half subparallel-sided.	
2 (7)	Vertex and eyes very little raised above the level of the pronotum.	
3 (4)	Vertex narrower than width of eye	PARATETTIX, Bol., p. 60.
4 (3)	Vertex as wide as or wider than eye.	
5 (6)	Wings developed	HEDOTTETIX, Bol., p. 71.
6 (5)	Wings absent	SPADOTETTIX, Hanc., p. 70.
7 (2)	Vertex and eyes obviously raised above the level of pronotum.	
8 (9)	Posterior femora without conspicuous nodosities on outside..	[p. 57. EUPARATETTIX, Hanc.,
9 (8)	Posterior femora with rugose nodosities on outside............	ERGATETTIX, g. n., p. 69.
10 (1)	Pronotum shorter, the posterior prolongation broadly cuneiform, its margins nearly rectilinear.	
11 (12)	Pronotum tectiform, the median carina well raised for its whole length	ACRYDIUM, Geoffr., p. 66.
12 (11)	Pronotum only tectiform at its widest part, the median carina very fine, the marginal carinæ on the same level as median ..	COPTOTETTIX, Bol., p. 74.]

Genus EUPARATETTIX.

Euparatettix, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 111, 145; id., Gen. Ins., Orth. Tetrig. 1906, pp. 51, 55.

TYPE, *Paratettix personatus*, Bol.

Range. The Oriental Region, New Guinea.

Head slightly raised, vertex rather narrower than the eye, elevated forward; antennæ moderately long, inserted scarcely below the eyes. Pronotum granulose, lateral angles rounded off, median and lateral carinæ strongly developed, the basal carinæ short; pronotum longer than the hind femora, but shorter than the wings. Tegmina oval, granulated. Anterior femora almost entire, hind femora spinulose; first and third joints of hind tarsi of nearly equal length; third pulvillus nearly as long as the other two.

Key to the Species.

1 (6)	Frontal carina rounded.	
2 (3)	Median carina of pronotum well marked	*personatus*, Bol., p. 58.

3 (2) Median carina of pronotum undulated.
4 (5) Wings two millimetres longer than pronotum; the latter smooth ...... *interruptus*, Brunn., p. 59.
5 (4) Wings one millimetre longer than pronotum; the latter finely granulose .. *scabripes*, Bol., p. 59.
6 (1) Frontal carina flattened between antennæ .... *parvus*, Hanc., p. 60.

56. **Euparatettix personatus**, *Bol.*

Paratettix personatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 278.
Euparatettix personatus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 145, 146, 155, 156, pl. ii, fig. 10, pl. iii, fig. 20; id., Gen. Ins. Orth. Tetrig. 1906, p. 55, pl. iii, fig. 32.

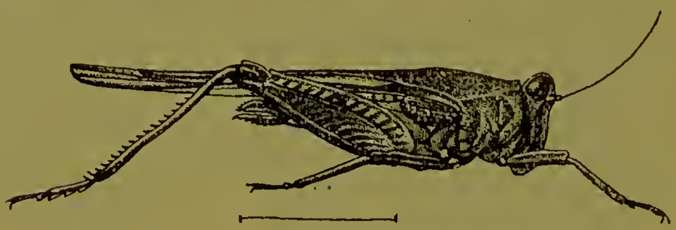


Fig. 52.—*Euparatettix personatus.*

Fig. 53.—*Euparatettix personatus.*

Body finely rugose, brown or reddish brown, often varied with grey. Antennæ rather long, sometimes annulated with white. Head prominent, vertex raised in front, narrower than the eye; frontal costa strongly arched in front, towards the base sloping, and entire. Pronotum narrow, pointed at the extremity, generally produced considerably beyond the hind femora, but shorter than the wings; median carina complete, strongly marked, slightly sinuated between the shoulders; hinder angle of the lateral lobes narrowly rounded. Tegmina oval, rounded at the tips. Front femora slender, almost entire; tibiæ and tarsi mostly blackish, ringed with white; hind tibiæ black, often with a broad white band near the base and spines; pulvilli of first joint of hind tarsi straight beneath, the third not much longer than the second.

Length 11–13 mm.; pronotum, 8–11 mm.; hind femora, 4–5 mm.

INDIA; BURMA; CEYLON; JAVA; PHILIPPINES.

Frequents grassy places and rice fields in Ceylon.

57. **Euparatettix interruptus**, *Brunn.*

Paratettix interruptus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 109.

Head raised, eyes rounded, vertex narrower than the eye, frontal carina rounded, slightly produced. Pronotum smooth, produced and pointed, subconstricted before the shoulders; the front marginal carinæ short, slightly converging behind the median carina, waved, not strongly marked and slightly crenulated. Wings two millimetres longer than the pronotum. Four anterior femora narrow; hind femora with the upper carina terminating in an obtuse tooth near the apex.

Length 8–9 mm.; pronotum, 10·6–11 mm.; hind femur, 5–5·8 mm.

BURMA: Karen Hills, Bhamo, Teinzo.

According to Brunner von Wattenwyl, both the foregoing species sometimes exhibit velvety black spots on the pronotum.

58. **Euparatettix scabripes**, *Bol.*

Paratettix scabripes, Bolivar, Ann. Mus. Genova, xxxix, 1898, p. 76; id., Ann. Soc. Ent. France, lxx, 1902, p. 585.

Reddish or grey, varied with brown or whitish, minutely granulose. Head slightly raised; vertex rather narrower than the eye, separated behind from the occiput by transverse folds, in front slightly narrowed, ascending, the median carina slender, abbreviated behind, with a raised carinula on each side below the eye; frontal costa but little produced, slightly sinuated behind the antennæ; eyes not prominent. Pronotum produced behind, finely granulose, rather convex before and between the shoulders, the middle carina subcompressed, undulated, the process at the base slightly excavated, the lateral carina granulose, when seen from above distinctly expanded and undulated; hinder angle of the lateral lobes slightly turned outwards, rounded-truncate. Tegmina oblong, punctured; wings longer than the pronotum, and varied outwardly with brown. Front femora slightly waved above; middle femora with the carinæ compressed and dilated, waved, ciliated beneath; hind femora short, upper carinæ crenulated towards the tip, lobate, outer surface with rather compressed prominent ridges; hind tibiæ brown, banded with white; first joint of hind tarsi longer than the third; pulvilli acute, the third shorter than the two basal ones together.

Length 6·5 mm.; pronotum, 10 mm.; hind femur, 5·5 mm.

E. BENGAL: Rajshai; SUMATRA.

Type in Bolivar's collection.

59. Euparatettix parvus, *Hanc.*

Euparatettix parvus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 145.

Body small, slender, rugose. Head slightly rounded, vertex narrower than the eye, not produced. Frontal costa flattened between the eyes, and slightly convex between the antennæ; the latter moderately long, filiform. Pronotum flattened and rugulose above, median carina irregular, lateral carina well marked in front of humeral angles; several small subsidiary carinæ in the disc. Tegmina oval, rounded at the tips; wings extending considerably beyond the pronotum. Hind tarsi spinose, brown, with two slight pale bands.

Length 9·7 mm.; pronotum, 8 mm.; hind femur, 3·9 mm.

CEYLON: Elephant Pass, Northern Province (*E. E. Green*).

Genus **PARATETTIX.**

Paratettix, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 187, 195, 270; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 110, 144; id., Gen. Ins., Orth. Tetrig. 1906, pp. 52, 55; Jacobs & Bianchi, Pram. Loznos. Ross. Imp. 1902, pp. 164, 175, 211.

TYPE, *Tetrix meridionalis*, Ramb.

Range. Cosmopolitan.

Body granulose, slightly rugose. Vertex horizontally not broader than the eye, carinated in the middle, more or less concave on the sides, bounded in front by sinuous carinulæ, and scarcely produced between the eyes; frontal carina between the eyes curved, sloping towards the base, rarely sinuated; antennæ filiform, long, 14-jointed, placed scarcely before the eyes; palpi not dilated, concolorous. Pronotum rather flattened, truncate in front, generally produced behind beyond the hind femora, the middle carina slightly raised, the humeral angles obtuse, lateral lobes bisinuated behind, the lower sinus straight or pointed, the hinder lateral angle turned down, with the tip rounded off. Tegmina oval, punctured; wings generally longer than the pronotum. Front femora compressed, carinated above, usually undulated; hind tibiæ with the apical third distinctly expanded and spinose; first joint of hind tarsi longer than the third, pulvilli acuminate, flattened below, the third pulvillus generally longer than the first two together.

Key to the Species.

1	(2)	Pronotum without a median carina	*balteatus*, Walk., p. 61.
2	(1)	Pronotum with a median carina.	
3	(4)	Middle carina of pronotum depressed in front, and ceasing before reaching the front margin	*scaber*, Thunb., p. 62.

4	(3)	Middle carina of pronotum continuous to front margin.	
5	(6)	A short raised line on each side between the shoulders.	
6	(5)	The short line curved ?*	*variabilis*, Bol., p. 62.
7	(6)	The short line straight	*dorsifer*, Walk., p. 63.
8	(5)	No short line between shoulders.	
9	(10)	Middle carina of pronotum strongly marked, distinctly arched, not depressed behind ..	*cingalensis*, Walk., p. 63.
10	(9)	Middle carina less strongly marked and more or less depressed.	
11	(12)	Carinæ of the hind femora entire	*indicus*, Bol., p. 64.
12	(11)	Upper carina of hind femora more or less finely serrated.	
13	(14)	Femora densely hairy beneath. .	*hirsutus*, Brunn., p. 65.
14	(13)	Femora less densely hairy beneath	*subhirsutus*, Brunn., p. 66.

60. **Paratettix balteatus**, *Walk.*

Tettix balteata, Walker, Cat. Derm. Salt. B.M., v, 1871, p. 828.

Fig. 54.—*Paratettix balteatus.*

Grey. Head [now wanting] small, with the usual looped keel, whitish about the mouth; eyes very prominent. Pronotum with a broad black transverse band above, just before the hind coxæ; this is concave before and behind, and marked with a white spot on each side behind; the pronotal process tapers, but at the tip is shortly truncated, with a fine spine on each side; it is also marked with several transverse blackish bands towards the extremity. The wings project considerably beyond the process, and are hyaline, varied with brown, and marked alternately with brown and hyaline on the costa towards the tip. Legs whitish, with blackish rings and markings; femora moderately stout, hind femora* and hind tarsi largely rufous. Abdomen short, white at the extremity, blackish towards the base above and at the sides.

* [The specimen identified by Mr. Kirby in the British Museum Collection as *variabilis* has the short carina curved, but Bolivar's description does not mention this.]

† [Owing to the position of the hind femora the raised nodosities are not shown in the figure. Examination of additional material indicates that the species should be referred to the genus *Ergatettix* (p. 69).]

Length of the body, 4½ lines; expansion of the hind wings, 9 lines.
S. INDIA.
Described from the much damaged type specimen.
Type in the British Museum.

61. **Paratettix scaber**, *Thunb.*

Acrydium scabrum, Thunberg, Nova Acta Uppsal., vii, 1815, p. 159.
Tettix subpustulata, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 819.
Tettix scaber, Stål, Recen. Orth. i, 1873, p. 149.
Paratettix scaber, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 279; id., Ann. Soc. Ent. France, lxx, 1902, p. 585.

Brown or blackish, scabrous, with very small darker granules. Head moderately produced, vertex not prominent, narrower than the eye, narrowed and subangularly rounded in front, and carinated in the middle. Pronotum produced behind, much constricted in front, the back transversely convex between the shoulders, the middle carina slightly raised, more compressed in front, and obsolete before reaching the front margin; hinder angle of the lateral lobes narrowly rounded off at the tips; a white spot on each side of the pronotum in the typical form, behind which is a black spot followed by a small whitish dot. Tegmina twice as long as broad, closely punctured; wings longer than the pronotum, iridescent, with brown borders. Carinæ of the front femora straight; front tibiæ ringed with white, hind tibia pale, at least at the base; hind tarsi pale, the first joint much longer than the third; pulvilli pointed, the third as long as the first two together.

Length 8–10 mm.; pronotum, 10·5–12·5 mm.; hind femur, 5·5–6·5 mm.

MADRAS: Trichinopoly; ZANZIBAR; PORTUGUESE EAST AFRICA; CAPE COLONY; GABOON.

62. **Paratettix variabilis**, *Bol.*

Paratettix variabilis, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 276; id., Ann. Soc. Ent. France, lxx, 1902, p. 585.

Brown or ferruginous, slightly rugose. Vertex narrower than the eye, carinated in front on each side, frontal costa arched and rounded, projecting between the eyes. Pronotum much produced (or, in varieties, scarcely produced beyond the hind femora), back nearly smooth, the middle carina acutely compressed in front, with a raised line on each side of the disc between the shoulders, obsolete before and behind; hinder angle of the lateral lobes acutely triangular. Tegmina rounded at the tip; wings 2 or 3 millimetres longer than the pronotum in the typical form. Front femora with the carinæ straight; middle femora long and linear;

hind tarsi with the two basal pulvilli acutely pointed at the tip, the third pulvillus rather longer than the second.

Length 7–10 mm.; pronotum, 9–11 mm.; hind femur, 5·5–6·5 mm.

MADRAS: Madura; BORNEO; PHILIPPINES.

Type in the British Museum.

63. Paratettix (?) dorsifer, *Walk.*

Tettix dorsifera, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 825.

Fig. 55.—*Paratettix dorsifer.*

Fawn-colour. Eyes very prominent, much raised above the vertex, which is narrower than an eye, slightly convergent in front, and considerably produced between the antennæ, which are placed below the eyes; the carina of the vertex is imperfect above. Front area of pronotum transversely ridged and tuberculate, with the carina much raised, the hinder part of the carina depressed and serrated; on each side a short raised carina between the median carina and the shoulders; behind the shoulders a triangular black mark on each side, the hinder part of the pronotum granulose and very slender, extending much beyond the hind femora. Tegmina oval, rather narrow; wings extending beyond the pronotum, narrowly rounded at the extremity, and with light and dark spots along the costa. Front femora widened and flattened, hind femora rugose and tuberculate.

BOMBAY.

The type in the British Museum does not agree well with Walker's description, but there is no other specimen to which it could apply.

64. Paratettix cingalensis, *Walk.*

Tettix cingalensis, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 827.
Paratettix variegatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 272, 280; Hancock, Spol. Zeyl. ii, pp. 108, 144.

Brown or ferruginous, or grey, varied with white. Head slightly raised, vertex truncated in front, as broad as the eye, frontal costa sloping towards the base in front. Pronotum much longer than the hind femora, rugulose punctate, sometimes spotted with brown and white; the middle carina compressed, continuous, strongly marked, raised and regularly arched in front; a short carina on each side on the anterior margin of the front lobe, each

followed by a short transverse one. Lateral carinæ incurved in front, and with a short straight carina thrown off opposite the curve, but not quite touching it in front; hind lobe of lateral angles narrowly rotund-truncate at the tips with the outer margin subreflexed. Tegmina broadly rounded at the tips; wings

Fig. 56.—*Paratettix cingalensis.*

hyaline, brown on the costa, with indistinct pale spots towards the extremity; much longer than the pronotum. Front femora slightly waved; hind femora crenulated above, with a small lobe before the tip; tibiæ pale, spotted with brown, hind tibiæ spined; pulvilli acute at the tips, the third longer than the second. Anal appendages of female very large, and bifid at the extremities.

Length 7–7·5 mm.; pronotum, 9–10 mm.; hind femur, 5–6 mm.; expanse of wings, 14 mm.

Ceylon.

Type in the British Museum.

Walker's type is a uniform brown specimen with all the markings obliterated, probably by spirit. There is, however, a second well-marked specimen in the collection, wanting only antennæ.

65. Paratettix indicus, *Bol.*

Paratettix indicus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 272, 281; id., Ann. Soc. Ent. France, lxx, 1902, p. 585.

Pale red or brown. Vertex slightly narrowed in front, frontal costa somewhat sinuated behind the antenna, slightly produced before the eyes. Pronotum smooth, rather depressed, and very obtusely tectiform, middle carina only slightly raised. Femora with

the carinæ entire; hind tarsi with the pulvilli sharply pointed, the third pulvillus longer than the first two together.

Length 8–10 mm.; pronotum, 10–11 mm.; hind femur, 5–6 mm.

MADRAS: Madura; CHINA.

Types in the collections of Pantel and Bolivar.

66. **Paratettix hirsutus**, *Brunn.*

Paratettix hirsutus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 110 pl. v, fig. 43.

Allied to *P. indicus*. Vertex as broad as the eye; frontal costa slightly produced, rounded. Pronotum with small granules; rather broad between the shoulders and depressed behind, the front marginal carinæ parallel, the middle carina continuous

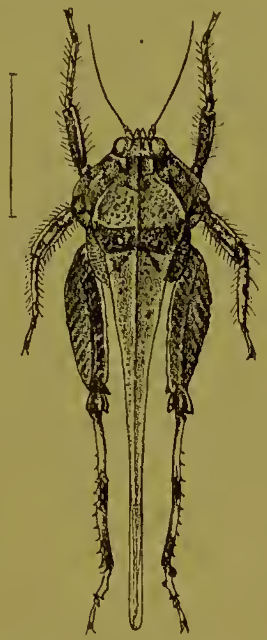


Fig. 57.—*Paratettix hirsutus.*

not waved. Wings extending 4 or 5 millimetres beyond the pronotum; or shorter than the pronotum in the form in which the pronotum is shorter than the hind femora. Femora compressed, dilated, not undulated; hind femora with the upper carina narrowly serrated, and with a large raised tooth before the extremity; hind tibiæ with two whitish bands.

Length 8·8–12 mm.; pronotum, 11·8–14 mm.; hind femur, 6·5–7·5 mm.

BURMA: Teinzo, Katha, Bhamo.

Fig. 58.—*Paratettix semihirsutus.*

67. **Paratettix semihirsutus**, *Brunn.*

Paratettix semihirsutus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 110.

Moderately stout. Vertex as broad as the eye; frontal carina slightly produced, rounded. Pronotum with very small unequal granules, not very broad between the shoulders, the anterior carinæ converging behind, the median carina complete, undulated behind the shoulders. Wings 2 mm. longer than the pronotum. Four front femora compressed and dilated, not undulated, rarely hairy; hind femora with the upper carina very narrowly serrated, and terminating in a tooth before the extremity; hind tibiæ brown at the base and pale towards the tips.

Length 9 mm.; pronotum, 11 mm.; hind femur, 5·2 mm.

BURMA: Karen Hills.

Genus ACRYDIUM.

Acrydium, Fabricius, Syst. Ent. 1775, p. 278; Leach, Edinb. Encycl. ix, 1815, p. 120.
Acridium, Schrank, Fauna Boica, ii, 1801, p. 30.
Tetrix, Latreille, Hist. Nat. Crust. Ins. iii, 1802, p. 284, xii, 1804, p. 161; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 110, 141; id., Gen. Ins., Orth. Tetrig. 1906, pp. 52, 57.
Tettix, Charpentier, Germ. Zeitschr. Ent. iii, 1841, p. 315; Bolivar, Ann. Soc. Ent. Belg. xxvii, 1887, pp. 187, 195, 257.
Bulla, Schrank (*nec* Linn.), Enum. Ins. Austr. 1781, p. 242.

TYPE, *Gryllus subulatus*, Linn.

Range. Cosmopolitan.

Body smooth, slightly rugose. Head not raised, vertex usually broader than the eye, with the sides more or less sinuated, carinated, subangulately rounded, in profile distinctly produced and slightly pointed before the eyes; frontal costa generally sinuated before the antennæ; antennæ very short, not extending to the humeral angles and often shorter than the head, rather thick, with from 12 to 14 joints, and inserted hardly before the eyes. Pronotum with the back ridged, rarely depressed, only slightly expanded between the shoulders, truncated or angulated in front, and pointed and produced behind about as far as the hind femora; humeral angles very obtuse, hinder angles of the lateral lobes slightly and obliquely turned outwards; lateral margins of the lower ones straight, or subsinuated at the base. Legs simple, carinæ of the femora rarely waved; hind tibiæ linear,

slender, sometimes slightly widened towards the tips; the carinæ serrulate, spiny, unarmed on the inner carina for the apical fifth; first joint of hind tarsi distinctly longer than the third.

When the pronotum is produced beyond the hind femora, tegmina and wings (extending beyond the pronotum) are usually present.

Key to the Species.

1 (2) Pronotum and wings extending far beyond the hind femora..........	*atypicale*, Hanc., p. 67.
2 (1) Pronotum and wings little, if at all, produced beyond the hind femora.	
3 (4) Pronotum with four black spots	*quadriplagiatum*, Walk., [p. 69.
4 (3) Pronotum with only two black spots.	
5 (6) Median carina of pronotum undulated.	*dilatatum*, De Haan, [p. 68.
6 (5) Median carina of pronotum regularly arched.	
7 (8) Body not hairy beneath	*bipunctatum*, L., p. 68.
8 (7) Body hairy beneath	*atypicale*, form *ceylonum*, [Hanc., p. 67.

68. **Acrydium atypicale**, *Hanc.*

Tettix atypicalis, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 142, 155, pl. iii, fig. 14.

Body slender, granulate-punctate, grey or reddish, legs ringed with brown. Vertex as wide as the eye and produced in front; antennæ rather short, filiform. Pronotum truncate in front, produced behind considerably beyond the hind femora; a brown spot on each side behind; raised between the shoulders, humeral angles acute, median carina continuous, regularly arched in front, and somewhat depressed behind. Tegmina oval, rounded at the tips; wings considerably longer than the pronotum. Femora slightly compressed, the carinæ finely serrulate; hind tibiæ spinose, first and third joints of hind tarsi of nearly equal length, pulvilli pointed at the ends, third as long as the first two together. Margins of legs, mouth-parts, and under surface hairy. Ovipositor short, the upper part rather wide.

Length 11·5–14 mm.; hind femur, 5·5 mm.

CEYLON: Kandy, Peradeniya, Dikoya.

Taken on grassland and at light in February, July, and November.

Micropterous Form.

Acrydium atypicale ceylonum, *Hanc.*

Tettix atypicalis ceylonus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 142, 143.

A small form, with the pronotum and wings more or less abbreviated, and the middle femora expanded in the male.

Length 6·9–10 mm.; hind femur, 4·2–5 mm.
CEYLON: Maskeliya, Pundaluoya.
Taken in January, March, April, and August.

69. Acrydium dilatatum, *De Haan.*

Acridium (Tettix) dilatatum, De Haan, Temminck, Verhandel., Orth. 1842, pp. 167, 169, pl. xxii, fig. 12.
Tettix dilatatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 187, 257, 260; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 109.

Ferruginous brown. Vertex broad, frontal carinæ compressed, raised, and sinuated; eyes prominent. Pronotum truncated in front, dilated, produced behind to the extremity of the abdomen, sometimes as far as or further than the hind femora; median carina tectiform before the middle; depressed behind the shoulders, and partly obliterated by a row of tubercles. Wings abbreviated, twice as long as the tegmina. Femora with waved carinæ, the hind femora spined at the tips, and with the outer area tuberculate or rugose; hind tibiæ spinose.

Length 9–14 mm.; hind femur, 5·5 mm.
BURMA: Karen Hills, 4000–4300 ft.; JAVA.

70. Acrydium bipunctatum, *L.*

Gryllus (Bulla) bipunctatus, Linnæus, Syst. Nat. (ed. x), 1758, p. 427.
Tettix bipunctatus, Brunner, Prodr. Eut. Orth. 1882, pp. 234, 235; Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 187, 258, 263; id., Ann. Soc. Ent. France, lxx, p. 585.
Acrydium bipunctatum, Kirby, Syn. Cat. Orth. iii, 1910, p. 33.

The extensive synonymy of this species is given by Brunner von Wattenwyl and Kirby, and need not here be repeated.

Fig. 59.—*Acrydium bipunctatum.*

Rather stout, colour excessively variable; brown or luteous, varied with grey and brown; nearly always with two triangular satiny black spots on the pronotum behind the shoulders. Vertex a little broader than the eye, and slightly produced in front; frontal costa slightly waved behind the antennæ. Pronotum truncated in front, not produced behind beyond the hind femora,

Fig. 60.—*Acrydium bipunctatum.*

and often shorter, carina continuous, raised and gradually arched in front, and slightly depressed behind; front carinæ slightly waved. Wings as long as the pronotum in the male; in the female much shorter and nearly obsolete. Hind femora thickened, the carinæ sharp, but not undulated; first joint of hind tarsi with the pulvilli rounded beneath, the third as long as the first two together.

Length 7–11·5 mm.; hind femur, 5–5·5 mm.

MADRAS: Kodaikanal; N. & W. ASIA; EUROPE.

71. **Acrydium quadriplagiatum**, *Walk.*

Tettix quadriplagiata, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 828.

Brown, stout, granulated, apterous. Vertex wider than the eye, raised above the eye into an obtuse angle, and forming a rounded projection between the antennæ; cheeks and front of pronotum with raised granules. Median carina on pronotum raised between the shoulders, straight, continuous, and tectiform; carinæ of front area distinct; disc with two black spots on each side before the middle, the hindermost pair the larger; the apex extending about as far as the hind femora and covering the abdomen as far as the base of the appendages. Legs paler than the body, and obscurely banded with blackish; middle femora considerably compressed and expanded, hind femora with several incomplete longitudinal rows of small blackish spots on the upper and lower outer areas; hind tibiæ spinose; first joint of hind tarsi much longer than the third, the pulvilli pointed beneath, the first two of equal length, and the third half as long again as the second.

NORTH INDIA.

Type in the British Museum.

Fig. 61.—*Acrydium quadriplagiatum.*

Genus **ERGATETTIX**, nov.

TYPE, *Ergatettix tarsalis*, sp. nov.

Eyes moderately prominent, separated by a space equal to

nearly one of them; antennæ slender, moderately long, inserted just below the eyes, beneath which the front projects slightly. Pronotum somewhat rugose; the median carina distinct, undulating, extending considerably beyond the hind femora and the abdomen, which are of about equal length, but rather shorter than the wings; beyond the level of the abdomen it is very slender. Four front femora compressed and widened; hind femora thickened, somewhat nodulose; middle tibiæ compressed and widened towards the base; hind tibiæ with terminal spines, those in the carinæ very small; hind tarsi with the first joint much longer than the third, with four moderate equal pulvilli beneath.

72. **Ergatettix tarsalis**, sp. nov.

Dark brown or reddish brown, the antennæ sometimes with

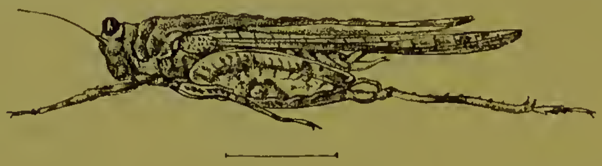


Fig. 62.—*Ergatettix tarsalis.*

Fig. 63.—*Ergatettix tarsalis.*

pale rings. Pronotum usually with a more or less distinct transverse black band, or two large spots just behind the level of the hind coxæ. Hind femora often with one or two black spots above, towards the extremity; hind tibiæ black, with two white bands.

Length, from head to tips of wings, 12–15 mm.

BENGAL: Calcutta.

Types in the British Museum and Calcutta Museum.

Genus SPADOTETTIX.

Spadotettix, Hancock, Spol. Zeyl. vi, 1910, p. 146.

TYPE, *Spadotettix fletcheri*, Hanc.

Range. Ceylon.

Apterous, face very oblique, vertex broader than the eye; median carina angulate, produced before the eyes. Pronotum truncate anteriorly, extending to the eyes, lateral lobes with the hinder angles slightly reflexed outwards, obtuse and obliquely truncate behind.

73. **Spadotettix fletcheri**, *Hanc.*

Spadotettix fletcheri, Hancock, Spol. Zeyl. vi, 1910, p. 147, figs. 1, 2.

Small, apterous, dark brown. Vertex wide, produced beyond the eyes, with a projecting median carina, face oblique, eyes small; antennæ slender, with 13 or 14 joints, inserted opposite the anterior lower angle of the eyes. Pronotum granulated, median carina biundulate. Front and middle femora compressed, hind femora with the lower margin "triundulate, bearing a small median lobe"; hind tibiæ black, with a slight yellow ring behind the knee; carinæ serrate-spinose; first joint of hind tarsi slightly longer than the third; first joint with the first and second pulvilli pointed, the third more flattened below.

Length 8 mm.

Ceylon: Madulsima, 3500 ft.

"On mossy rocks."

Genus **HEDOTETTIX**.

Hedotettix, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 195, 283; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 111, 148; id., Gen. Ins., Orth. Tetrig. 1906, pp. 52, 60.

Type, *Acridium* (*Tettix*) *gracile*, De Haan.

Range. Indian Region, Australia, Africa, Madagascar.

Body slender, nearly smooth or only slightly granulated. Head not prominent, vertex not broader than the eye, carinated in the middle, generally expanded and transversely carinated in front, frontal costa arched between the antennæ, not sinuated between the eyes; antennæ filiform, rather short, inserted between the eyes. Pronotum truncated and obtusely angulated in front, long and pointed behind, the median carina slightly compressed and continuous; hinder angle of the lateral lobes very narrowly rotund-truncate, or slightly pointed. Tegmina rounded at the tip, rarely pointed; wings generally as long as the pronotum. Legs compressed, front femora entire or indistinctly undulated, hind femora with the carinæ granulated; tibiæ regularly spined; first joint of the hind tarsi long, the third joint shorter than the first.

Key to the Species.

1 (2) Frontal carina widely sulcate, the rami widened between the eyes .... *gracilis*, De Haan.
2 (1) Frontal carinæ nearly straight, not suddenly divergent between the eyes.... *attenuatus*, Hanc.

Species incertæ sedis *lineifera*, Walk.

74. **Hedottetix gracilis**, *De Haan.*

Acridium (*Tettix*) *gracile*, De Haan, Temminck, Verhandel. Orth. 1842, pp. 167, 169.
Hedotettix gracilis, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 283, 284 ; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 149, 156, pl. iii, fig. 19.
Tettix discalis, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 826.
Tettix umbrifera, Walker, op. cit., 1871, p. 824.
(?) *Tettix lineata*, Walker, op. cit. Suppl. 1871, p. 90.
Hedotettix festivus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 284, 286, pl. v, fig. 24.
Hedotettix gracilis abortus, Hancock, Spol. Zeyl. ii, 1887, pp. 188, 284, 286, pl. v, fig. 24.
Tettix obliquifera, Walker, op. cit. p. 825.
Var. *Tettix vittifera*, Walker, op. cit. p. 824.
Var. *Tettix nigricollis*, Walker, op. cit. p. 826.

Long and slender, very variable in colour, yellow, varied with brown and rosy, or brown and green, with pale or reddish central and lateral carinæ, a black oblong spot on each side before the lateral carina in front, and a narrow angulated black mark touching the lateral carinæ just behind the shoulder. Vertex as broad as the eye, front rounded, face nearly straight and slightly oblique. Pronotum truncated in front, acute behind, and produced considerably beyond the hind femora ; hinder angles of lateral

Fig. 64.—*Hedotettix gracilis.*

lobes slightly angulated, with the outer margin thickened. Tegmina blackish, oval, rounded at the ends ; wings as long as or much longer than the pronotum, extending nearly or quite to the tips of the tibiæ. Legs pale, often with darker rings ; front femora compressed and carinated, especially the middle ones ; hind femora with the upper outer area blackish, the slightly oblique wrinkles separated by paler lines ; hind tibiæ finely spinose ; first joint of hind tarsi nearly twice as long as the third, pulvilli pointed at tips, the third scarcely longer than the second.

Length 12–15 (in micropterous form, 9–10) mm. ; hind femur, 4·9–6 mm.

N. India ; Bombay ; Madras : Trichinopoly ; Burma : Teinzo, Rangoon ; Java : Krawang ; Celebes : Tondano.

75. **Hedotettix attenuatus**, *Hanc.*

Hedotettix attenuatus, Hancock, Spol. Zeyl. ii, 1904, pp. 108, 149, 151, pl. iii, fig. 18; id., Gen. Ins., Orth. Tetrig. 1906, p. 60, fig. 23.

Body very slender, vertex narrower than one of the eyes, subtruncate in front, and scarcely raised above the eyes; median carina of pronotum hardly compressed. Colour very variable, sometimes with a broad longitudinal stripe of emerald green, which fades after death.

Length 10·5–14 mm.; hind femur, 4·5–6·7 mm.

CEYLON: Colombo.

Fig. 65.—*Hedotettix gracilis.*

Fig. 66.—*Hedotettix lineifera.*

76. **Hedotettix (?) lineifera**, *Walk.*

Tettix lineifera, Walker, Cat. Derm. Salt. v, 1871, p. 824.

Differs from *H. gracilis* in the pronotum being slightly raised and undulated along the central keel; the upper surface is brown, with several raised longitudinal whitish lines.

Length, to end of pronotum, 16 mm.; to end of wings, 18 mm.

BOMBAY.

I should have regarded this insect as another variety of the very variable *H. gracilis*, but for the longitudinally ridged pronotum. It should perhaps form a new genus; but I have only two specimens before me in too bad condition to describe in detail.

Genus COPTOTETTIX.

Coptotettix, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 195, 287; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 111, 152; id., Gen. Ins., Orth. Tetrig. 1906, pp. 52, 65.

TYPE, *Coptotettix asperatus*, Bol.

Range. Indian Region, Australia, West and East Africa.

Body more or less rugose or granulated. Head not prominent, vertex smooth, narrowed in front, the frontal carinulæ interrupted internally, or recurved; frontal costa rounded, more or less produced; antennæ long, filiform, inserted between the eyes. Pronotum truncated in front, produced behind only as far as the hind femora; or else very long and pointed; median carina almost always depressed, very rarely ridged. Tegmina oblong; wings often abbreviated. Front femora generally long, with parallel carinæ; hind femora long, with the carinæ entire or crenulated; first joint of hind tarsi longer than the third.

Key to the Species.

1	(4) Tegmina and wings absent.	
2	(3) Colour black; hind femora with a tooth above before the extremity ..	*latifrons*, Brunn., p. 74.
3	(2) Colour luteous; hind femora with no tooth above before the extremity ..	*acuteterminatus*, Brunn., [p. 75.
4	(1) Tegmina and wings present.	
5	(8) Pronotum not extending beyond the tip of the abdomen; wings more or less rudimentary.	
6	(7) Median carina of pronotum ridged....	*fossulatus*, Bol., p. 76.
7	(6) Median carina of pronotum depressed.	*capitatus*, Bol., p. 76.
8	(5) Pronotum and wings extended beyond the abdomen.	
9	(10) Pronotum very rugose	*testaceus*, Bol., p. 77.
10	(9) Pronotum only slightly rugose	*interruptus*, Bol., p. 78.

77. Coptotettix latifrons, *Brunn.*

Coptotettix latifrons, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 112, pl. v, fig. 44.

Black, stout, rugose. Vertex about twice as broad as the eye;

Fig. 67.—*Coptotettix latifrons*, ♀.

antennæ slender, inserted between the eyes; the frontal carinæ distinctly converging. Pronotum with the carina ridged and

slightly arching in front, where it is parallel to the two short frontal carinæ; pronotum as long as the abdomen, the surface with numerous raised granules. Tegmina and wings obsolete. Legs very hairy, front femora and tibiæ compressed and expanded, and the former strongly carinated; hind femora denticulated above, with a strong tooth before the extremity; the upper outer

Fig. 68.—*Coptotettix latifrons*, ♂.

Fig. 69.—*Coptotettix latifrons*, ♀.

area with a row of large granules, and the middle area transversely striated, with another row of tubercles above its lower margin; hind tibiæ strongly spinose; hind tarsi reddish, with the first joint longer than the third, and the pulvilli pointed and of nearly equal length.

In the male the hind tibiæ are dull orange, tipped with black.

Length 10 mm.; hind femur, 6·5 mm.

BENGAL: Pusa; BURMA: Pegu.

Taken in May and November.

78. **Coptotettix acuteterminatus**, *Brunn.*

Coptotettix acuteterminatus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 112.

A smaller species than the last, and testaceous. Pronotum less strongly granulated, the median carina ridged throughout, the margins of the lateral lobes more arched, and spotted at that place with black; the pronotum shorter and more pointed at the

extremity, and the upper carina of the hind femora continuous, without any antegenicular tooth.

Fig. 70.—*Coptotettix acuteterminatus.*

Length 7 mm.; hind femur, 5 mm.
BURMA: Pegu.

79. Coptotettix fossulatus, *Bol.*

Coptotettix fossulatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 287, 288; Hancock, Spol. Zeyl. ii. 1904, pp. 108, 153.

Pale grey, varied with brown, rugose-tuberculate. Head not prominent, vertex as broad as the eye, slightly pitted on each side, not produced in front, frontal costa between the eyes considerably arched and rounded; antennæ inserted between the eyes. Pronotum tectiform in front, flattened behind, and as long as the abdomen; disk rugosely tuberculate, concave behind the shoulders; median carina raised in front, and several times interrupted behind; hinder process on both sides with a slightly compressed irregular carina towards the lateral carinæ, the deflexed lobes much sinuated beneath; hinder angle of the lateral lobes broad, with the tip roundly truncate. Tegmina very small, slightly pointed; wings rudimentary. Intermediate femora rather broad, the upper carina scarcely raised behind the middle; hind femora broad, hind tibiæ slightly spinose; first joint of hind tarsi much longer than the third; pulvilli pointed at the tips, the third joint longer than the second.

Length 8 mm.; hind femur, 4·5 mm.
CEYLON.

80. Coptotettix capitatus, *Bol.*

Coptotettix capitatus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 188, 287, 289; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 111.

Dull ferruginous, rugose. Head not prominent, vertex considerably broader than the eye, flattened, distinctly narrowed in front and produced before the eyes; frontal costa arched and produced between the eyes; antennæ inserted almost between the eyes. Pronotum flattened, rugosely tuberculate; median carina continuous, little raised, and slightly sinuated before the shoulders; frontal lateral carinæ parallel; disk with two short

oblique ridges between the shoulders, converging behind; humeral angles obtuse, and within them a nearly straight carina running backwards to the tip of the pronotum, the latter not covering the abdomen; hinder angle of the lateral lobes narrowly and roundly subtruncate at the tips. Tegmina very small; wings rudimentary. Front femora very long, with nearly straight carinæ, hind femora with the apical half more slender; pulvilli of the first joint of the hind tarsi pointed, but not spinose at the tip, the third pulvillus rather longer than the second.

Length 11 mm.; hind femur, 7·5 mm.

BURMA: Karen Hills, 4700–5000 ft.; JAVA.

Species incertæ sedis.

Acrydium indicum, *Oliv.*

Acrydium indicum, Olivier, Encycl. Méth., Ins. vi, 1791, p. 234.

Uniform blackish. Pronotum smooth, median carinæ not much raised; produced behind rather beyond the abdomen, but much shorter than the wings, which are transparent, with the outer border brown.

Size of *T. subulatus*, L.

EAST INDIES.

[In a note Mr. Kirby suggests that this may be *Coptotettix capitatus*, Bol.]

81. **Coptotettix testaceus**, *Bol.*

Coptotettix testaceus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 189, 288, 291; Hancock, Spol. Zeyl. ii, 1904, pp. 108, 153.

Testaceous yellow, varied with brown and grey. Head not prominent, vertex narrower than the eye, narrowed in front, not produced before the eye when seen from above; frontal costa arched and slightly sinuated before the median ocellus; antennæ inserted between the eyes. Pronotum produced beyond the abdomen, the disk flattened, rather convex between the shoulders, with round tubercles; depressed before the shoulders, with the front marginal lateral carinæ short; hind part of pronotum with scattered elongate wrinkles; hinder angle of the lateral lobes triangular, with the tip narrowly subtruncate. Tegmina oblong, with the tips rounded; wings fully developed. Femora banded with brown, narrow, long, with the carinæ very slightly waved; hind femora strongly granulose; first joint of the hind tarsi much longer than the third, and distinctly serrulated above; third pulvillus shorter than the first two together.

Length 10 mm.; pronotum, 12·5 mm.; hind femur, 7 mm.

CEYLON.

Type in the collection of I. Bolivar.

82. **Coptotettix interruptus**, *Bol.*

Coptotettix interruptus, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 189, 288, 291.

Dull ferruginous-brown. Vertex much narrower than the eye, somewhat narrowed in front, not produced before the eye, with the anterior carinæ much interrupted on the inner side; frontal costa much arched and produced between the eyes, distinctly sinuated before the median ocellus; antennæ inserted between the eyes. Pronotum produced beyond the abdomen, with the disc flattened, nearly smooth, but sometimes finely granulate, rugose, with two short carinæ before the shoulders; median carinæ slightly raised and compressed, straight, crested in front, but towards the front margin suddenly depressed and obliterated; frontal lateral carina diverging in front, hinder angle of the lateral lobes with the tip rounded. Tegmina short, oval; wings much longer than the pronotum. Femora long, with the carinæ crenulated; first joint of hind tarsi with the third pulvillus scarcely longer than the second.

Length 9 mm.; pronotum, 11 mm.; hind femur, 6 mm.

Burma: Bhamo, Rangoon, Karen Hills; Java.

Group VI. *BATRACHIDIINI.*

One genus only is represented within the geographical limits of this work.

Genus **SAUSSURELLA.**

Saussurella, Bolivar, Ann. Soc. Ent. Belg. xxxi, 1887, pp. 189, 196, 303; Hancock, Gen. Ins., Orth. Tetrig. 1906, pp. 67, 72.

Type, *Acridium (Tettix) cornutum*, De Haan.

Range. The Indian Region.

Body granulose. Vertex broad, convex, but not spiny, shortly carinated on each side near the eyes, face slightly oblique; frontal costa depressed, slightly raised between the antennæ, and suddenly depressed between the eyes, very broadly sulcate, with the carinæ nearly parallel; antennæ inserted between the eyes, which are slightly prominent; palpi moderately compressed. Pronotum produced in front above the head, with a straight median carina; produced behind beyond the hind femora, the deflexed lobes bisinuated behind, with the lower sinus arched. Tegmina ovate; wings perfectly developed. Femora multicarinate; front femora above sulcated, intermediate femora mucronate at the tip, hind femora slender, with the carinæ serrulated; the femoral spine small, the genicular spine moderately produced; hind tarsi with the carinæ nearly parallel and equally spinose, and with the first and third joints of equal length.

Key to the Species.

1 (2) Front of pronotum straight .... *cucullifera*, Walk.
2 (1) Front of pronotum ending in a decurved process .... *decurva*, Brunn.

83. **Saussurella cucullifera**, *Walk.*

Tettix cucullifera, Walker, Cat. Derm. Salt. B.M. v, 1871, p. 829.
Saussurella cornuta, Bolivar (*nec* De Haan), Ann. Soc. Ent. Belg. xxxi, 1887, pp. 189, 303; Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 113, pl. v, fig. 45.

Fig. 71.—*Saussurella cucullifera.*

Reddish grey, vertex twice as broad as the eye, but entirely covered by the pronotum, on the sides of which the prominent eyes are conspicuous; antennæ rather long and slender, filiform, inserted between the eyes; the frontal carina slightly projecting between the antennæ. Pronotum projecting rather beyond the eyes in front, where it is obtusely pointed, and extending behind, where it is more gradually and acutely pointed, beyond the abdomen and the hind femora; strongly ridged, and the median carinæ continuous and slightly raised between the shoulders, the sides and hind part of the pronotum being somewhat depressed; the surface appears finely pubescent. Tegmina black, with pale bands; wings hyaline, fawn-coloured along the costa. Legs unicolorous, except that the knees of the middle and hind legs, and the terminal joints of the tarsi, are black.

Length 13–16 mm.; hind femur, 6·4–8 mm.; exp. of wings, 22 mm.

Burma: Pegu, Palon; China: Amoy, Hong Kong.

Type in the British Museum (from Amoy).

Confounded by authors with *Acridium* (*Tettix*) *cornutum*, De Haan, from Java and Borneo; but in that species the frontal projection of the pronotum is longer and more slender than in *S. cucullifera*, and there is a conspicuous yellow spot on the hind femora.

84. **Saussurella decurva**, *Brunn.*

Saussurella decurva, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 113, pl. v, fig. 46.

Larger than the last species, with the frontal extremity of the

pronotum longer, more slender and hooked downwards at the tip, and the lateral lobes more produced externally.

Length, pronotum, 19 mm.; hind femur, 8 mm.

BURMA: Palon.

Subfamily II. EUMASTACINÆ.

Key to the Groups.

1 (4) Frontal costa between the antennæ smooth, more or less dilated.
2 (3) Pronotum tectiform and foliaceous; hind femora dilated and compressed .... *Xiphicerini*, p. 80.
3 (2) Pronotum with the back smooth; hind femora not dilated .... *Erianthini*, p. 86.
4 (1) Frontal costa narrow, subsulcated.
5 (6) Antennæ generally long, more or less clavate .... *Gomphomastacini*, p. 93.
6 (5) Antennæ shorter than the front femora, not clavate .... *Eruciini*, p. 94.

Group I. *XIPHICERINI.*

Key to the Genera.

1 (4) Front smooth or granulated.
2 (3) Hind tibiæ lobate; wings caudate .. XIPHICERA, p. 80.
3 (2) Hind tibiæ not lobate; wings not caudate .... PHYLLOCHOREIA, p. 82.
4 (1) Front rugose, with raised tubercles.
5 (6) Pronotum shorter than the height of the head and not covering it; tegmina obliquely truncate at extremity .... SCIRTOTYPUS, p. 84.
6 (5) Pronotum longer than the height of the head, and covering the fastigium of the vertex; tegmina lanceolate at extremity .... ORCHETYPUS, p. 84.

Genus XIPHICERA.

Xiphicera, Lamarck, Anim. sans Vertèbres, iv, 1817, p. 243.
Xyphicera, Latreille, Cuv. Règne Anim. (ed. 2) v, 1829, p. 186.
Chorotypus, Serville, Ins. Orth. 1839, p. 751.
Choroetypus, De Haan, Temminck, Verhandel. Orth. 1842, p. 164.

TYPE, *Gryllus gallinaceus*, F.

Range. India, Singapore, Java, Borneo.

Head perpendicular or slightly oblique; eyes long, oval, approximating above, front raised above the eyes into an obtuse or slightly bifid point directed forwards; antennæ short, 12-jointed.

Prothorax greatly compressed and foliaceous, covering the head and a great part of the abdomen. Tegmina coriaceous, pointed at the tip, with the hind margin oblique; rather shorter than the wings, which are hyaline, with brown tips and margins; tip pointed, hind margin with a deep concavity below. Abdomen compressed, with a strong middle carina. Legs compressed, carinated, hind femora strongly serrated, hind tibiæ laminated and spinose above, and first joint of tarsi serrated beneath.

Key to the Species.

Pronotum uniform brown	*rugifrons*, sp. n.
Pronotum with a vitreous spot	*fenestrata*, Serv.

[85. **Xiphicera rugifrons**, *Waterhouse*, sp. nov.*

♀. Rather dark brown, the back of the head, the lateral lobes of the pronotum, and the lower part of the posterior femora somewhat paler. Head flat in front, with numerous rugulæ, two of which start at a short distance front the front margin and diverge to the anterior angles. Pronotum finely asperate. Tegmina

Fig. 72.—*Xiphicera rugifrons.*

narrow, reticulate, obliquely truncate at the apex. Wings extending a short distance beyond the tegmina, transparent smoky-yellow, the costa near the apex and the apex itself dark brown, strongly arcuate towards the apex, and then sinuate, with a deep rectangular incision behind, so that the apex is caudiform. Front femora very broad; the intermediate ones less so. Posterior femora with seven acute teeth on the upper carina.

Length 33 mm.

CEYLON.

Type in the British Museum.]

86. **Xiphicera fenestrata**, *Serv.*

Choreotypus fenestratus, Serville, Ins. Orth. 1839, p. 753.

Uniform dead-leaf colour. Thorax with well-marked oblique lateral nervures, its front edge vertical and the upper extremity produced into a point over the head. A perfectly round vitreous spot about the middle of the side of the pronotum.

Length 20–22 mm.

[*A figure of this species had been prepared by Mr. Kirby, but he had not named or described it.—C. O. W.]

BENGAL.

Type in the Paris Museum.

I am very doubtful as to the identification of this species; and I should not be surprised if *Choreotypus fenestratus* proved to be a species of *Phyllochoreia.*

Genus PHYLLOCHOREIA

Phyllochoreia, Westwood, Mag. Nat. Hist. n. s. iii, 1839, p. 495.

TYPE, *Phyllochoreia unicolor*, Westw.

Range. India, Ceylon, Borneo.

Body greatly compressed. Face perpendicular, pointed and sometimes slightly curved forward above, broader below than above. Antennæ short and slender, with distinct joints, the two basal joints thicker. Pronotum raised into a high leaf-like expansion, truncated in front, or slightly curved forward over the head, triangularly produced behind, and overshadowing more or less of the abdomen. Tegmina and wings more or less abbreviated, not caudate. Prosternum not spined. Legs long, simple; hind femora thickened, hind tibiæ curved, hind tarsi 3-jointed, the first joint undulated beneath; arolium between the claws very large.

Key to the Species.

1	(2) Dorsal carina of pronotum nearly straight, slightly depressed beyond the middle	*unicolor*, Westw., p. 82.
2	(1) Dorsal carina of pronotum regularly arched.	
3	(4) Tegmina rather broad, lanceolate ..	*equa*, Burr, p. 83.
4	(3) Tegmina very narrow, obliquely truncated at the extremities	*asina*, Burr, p. 83.

87. **Phyllochoreia unicolor,** *Westw.*

Phyllochoreia unicolor, Westwood, Mag. Nat. Hist. n. s. iii, 1839, p. 495, and p. 492, fig. 6; Saussure, Rev. Suisse Zool. xi, 1903, pp. 55, 58.

Phyllochoreia sulcata, Saussure, Rev. Suisse Zool, xi, 1903, pp. 55, 59.

Brown. Antennæ 14-jointed; head finely granulated, the

Fig. 73.—*Phyllochoreia unicolor.*

summit pointed, when seen in profile; a slender black line

running from the eyes to the mandible. Pronotum finely granulated, the dorsal carina nearly straight and slightly depressed beyond the middle, extending nearly to the apex of the abdomen. Tegmina and wings moderately broad, slightly pointed at the extremity, and about as long as the pronotum, which is only slightly shorter than the abdomen. Hind tibiæ greenish.

Length 29–32 mm.

MADRAS: Malabar.

Type in the Oxford Museum; that of *P. sulcata* in the British Museum.

88. **Phyllochoreia equa**, *Burr.*

Phyllochoreia equa, Burr, Ann. Soc. Españ. xxviii, 1899, p. 301.
Phyllochoreia æqua, Saussure, Rev. Suisse Zool. xi, 1903, pp. 55, 56, pl. iii, fig. 2.

Green or ochreous. Antennæ 10-jointed; head narrowed and rather pointed above, very broad below the eyes, with a short black line on each side near the lower end of the face. Pronotal crest more or less projecting roundly over the head, regularly arched above, and extending nearly to the middle of the abdomen. Tegmina rather broadly pointed at the extremity, with a row of 6–8 long black spots in the discoidal area. Wings subhyaline,

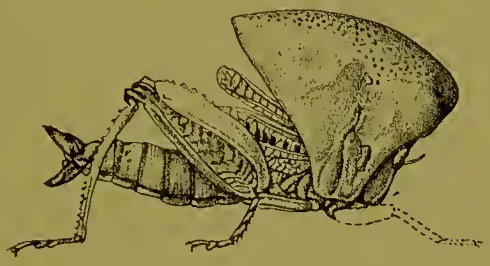


Fig. 74.—*Phyllochoreia equa.*

straight, parallel, rounded at the extremity. Hind femora broad, much compressed, denticulated above; hind tibiæ slender, with the upper carinæ closely denticulated.

Length: ♀ 26–44 mm., ♂ 16 mm.

CEYLON.

Type in the Oxford Museum.

89. **Phyllochoreia asina**, *Burr.*

Phyllochoreia asina, Burr, Ann. Soc. Españ. xxviii, 1899, pp. 301, 302.

Pale testaceous. Front smooth. Pronotum with the front angles rounded, the crest not much arched, its hinder angle acute, with the hind margin obliquely truncated. Hind femora much

compressed. Tegmina rather narrow, projecting beyond the hind femora, and dark at the tip.

Length 13 mm.

Ceylon: Hambantota.

Type in the Oxford Museum.

Genus **SCIRTOTYPUS.**

Scirtotypus, Brunner von Wattenwyl, Abh. Senckenb. Ges. xxiv, 1898, pp. 216, 220; Burr, Gen. Ins., Orth. Eumast. 1903, pp. 3, 4.

Type, *Scirtotypus aberrans,* Brunn.

Range. Ceylon, Borneo, W. Africa.

Fastigium of the vertex obtuse, but the occiput raised behind it, and obtusely pointed and carinated. Pronotum closely granulated, shorter than the height of the head, with the crest raised and serrulated. Tegmina broader towards the extremity, and obliquely truncated; wings shorter than the tegmina. All the femora much compressed and dilated, with the hind pair serrated above; hind tibiæ armed above with large spines, and with a large triangular lobe near the base. Valves of the ovipositor smooth.

90. **Scirtotypus greeni,** *Burr.*

Scirtotypus greeni, Burr, Ann. Soc. Españ. xxviii, 1899, pp. 99, 100.

♂. Brown. Fastigium of the vertex perpendicular, truncated at the tip. Pronotum compressed, strongly crested, with the dorsal carina oblique in front, and strongly excavated behind, with the hind margin acuminate, with the point in the form of a hook. Tegmina narrow, parallel-sided, obtusely truncated, brown at the base, then hyaline; tip brown, with a hyaline spot towards the extremity of the inner margin. Wings longer than the tegmina, with the tips brown and caudate. All the femora much compressed, with the upper carina denticulated; hind tibiæ subsinuate, lobate, with the lobes not denticulated, brown, with indistinct pale rings, and the spines with pale markings. Abdomen compressed, carinated; cerci short, conical, incurved; subgenital lamina short.

Length 9·75 mm.; pronotum, 2·75 mm.; tegmina, 10 mm.; hind femur, 9 mm.

Ceylon: Pundaluoya.

Type in the Oxford Museum.

Genus **ORCHETYPUS.**

Orchetypus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, pp. 216, 220; Burr, Gen. Ins., Orth. Eumast. 1903, pp. 3, 5.

Type, *Orchetypus subtruncatus,* Brunn.

Range. Ceylon, Congo.

Characters of *Scirtotypus*, but the front rugose and the pronotum less strongly so, and with some obsolete nervures; tegmina lanceolate, shorter than the wings. Ovipositor with the lower valves serrulated.

Key to the Species.

1 (2)	Dorsal carina strongly excavated before the extremity	*subtruncatus*, Brunn.
2 (1)	Dorsal carina not strongly excavated before the extremity.	
3 (4)	Dorsal carina regularly rounded	*rotundatus*, Brunn.
4 (3)	Dorsal carina arched in front and depressed behind	*ceylonicus*, Karsch.

91. **Orchetypus rotundatus**, *Brunn.*

Orchetypus rotundatus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, pp. 216, 220.

Crest of the pronotum regularly rounded.

Length 30 mm.; pronotum, 13 mm.

CEYLON.

Type in the collection of Brunner von Wattenwyl.

92. **Orchetypus ceylonicus**, *Karsch.*

Choroetypus ceylonicus, Karsch, Ent. Nachr. xv, 1889, p. 8; Burr, Ann. Soc. Españ. xxviii, 1899, p. 300.
Orchetypus ceylonicus, Saussure, Rev. Suisse Zool. xi, 1903, p. 73, pl. iii, fig. 6.

Yellowish green, with brown markings. Antennæ filiform, with the joints longer than broad; front very rugose; fastigium of the vertex truncated at the extremity. Dorsal carina of the pronotum arched in front, and depressed behind, with the hind margin sinuated. Tegmina rounded behind, not extending beyond the abdomen. All the femora strongly foliaceously dilated; hind tibiæ with a terminal foliaceous lobe. Terminal appendages with the tips hooked in opposite directions; the upper valves strongly dentated above, and the lower ones below.

Length 26–28 mm.; tegmina, 19 mm.; hind femur, 13 mm.; height of pronotum, 11·5 mm.; greatest breadth of tegmina, 5 mm.

CEYLON.

Type in the Berlin Museum.

93. **Orchetypus subtruncatus**, *Brunn.*

Orchetypus subtruncatus, Brunner, Abh. Senckenb. Ges. xxiv, 1899, p. 221, pl. xvii, fig. 28.

Crest of pronotum rounded and almost pointed in front, with the apical third deeply excavated.

Length 32 mm.; pronotum, 12 mm.
CEYLON.
Type in the collection of Brunner von Wattenwyl.

Group II. *ERIANTHINI.*

Key to the Genera.

Fastigium of the vertex raised; vertex viewed from the front acuminate or bifid..........	ERIANTHUS, p. 86.
Fastigium of the vertex horizontal; vertex viewed from the front truncate	BENNIA, p. 91.

Genus ERIANTHUS.

Erianthus, Stål, Bih. Svensk. Akad. Handl. iii (14), 1875, p. 36; Brunner, Abh. Senckenb. Ges. xxiv, 1898, p. 221; Burr, Gen. Ins., Orth. Eumast. 1903, pp. 6, 7; Saussure, Rev. Suisse Zool. xi, 1903, pp. 75, 77.

TYPE, *Mastax guttata*, Westw.

Range. The Indo-Malayan Region.

Fastigium of the vertex erect, tapering, with the tip straight or slightly reflexed, and obtuse; front flattened, rugose, with a smooth dilated ridge between the antennæ. Pronotum smooth, slightly raised, truncated in front, obtusely produced behind, and longitudinally carinated. Tegmina narrow, broader towards the extremity, with a few veins, and more or less subhyaline. Wings triangular, subhyaline, not longer than the tegmina. Femora slightly compressed, carinated above, and produced into a tooth behind; hind femora slender, serrated above; hind tibiæ with from 20–25 equal spines on the inner carina, and 25 on the outer; first joint of hind tarsi sulcated above, and dentated on the outer carina. Abdomen with the eighth segment expanded in the male, and the anal appendages very large; in the female bifid at the extremity, and grooved on each side; lower valves with the basal plates smooth and punctured, and the upper border dilated.

Key to the Species.

1	(4)	Vertex bifid or (in a supposed variety of the male) truncate.	
2	(3)	Wings of ordinary form	*affinis*, Westw., p. 87.
3	(2)	Wings strongly sinuated apically, the apex itself very acute	*bifidus*, sp. n., p. 87.
4	(1)	Vertex not bifid.	
5	(8)	Vertex pointed, subreflexed.	
6	(7)	Tegmina acutely pointed	*acutipennis*, Sauss., [p. 89.
7	(6)	Tegmina obtusely pointed	*guttatus*, Westw., p. 88.
8	(5)	Vertex more or less rounded.	
9	(10)	Wings brown	*lugubris*, Brunn., p. 89.
10	(9)	Wings more or less yellowish hyaline.	

11 (12) Tegmina brown, with or without whitish spots .... *defloratus*, Brunn., p. 89.
12 (11) Tegmina pale. [p. 90.
13 (14) Tegmina hyaline, unspotted........ *humbertianus*, Sauss.,
14 (13) Tegmina spotted.
15 (16) Tegmina with two hyaline spots .... *flavipes*, Sauss., p. 90.
16 (15) Tegmina with one hyaline spot .... *birmanicus*, Sauss., p. 90.

94. Erianthus affinis, *Westw.*

Mastax affinis, Westwood, Arcana Ent. ii, 1843, p. 54, note.
Erianthus acuticarinatus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 117, pl. v, fig. 48; Saussure, Rev. Suisse Zool. xi, 1903, pp. 78, 80, pl. iii, fig. 11.

Brown, inclining to rufous. Fastigium of the vertex erect, very broad, and more or less bifid at the extremity. Pronotum rugose, with a high irregular median carina. Tegmina with ferruginous network, the spaces between subhyaline, especially above the principal nervure, and an oblique whitish stripe at about four-fifths of the inner margin, running towards the tip. Wings fulvo-hyaline, with ferruginous nervures, and a narrow brown hind margin. Abdomen ferruginous brown, especially at the extremity. The upper appendages of the female are finely serrated, not coarsely and irregularly, as in Saussure's figure, and the lower appendages have three small teeth before the extremity. The male has a small white spot towards the apex of the tegmina. Femora blackish, strongly compressed and laminate-carinate above and below; hind femora with three white bands, and the upper carina terminating in a sharp triangular tooth.

Fig. 75.—*Erianthus affinis*.

Length 25–32 mm.; exp. of tegmina, 35–48 mm.

ASSAM: Sylhet; BURMA: Teinzo.

Type in the Oxford Museum; that of *acuticarinatus* in the Genoa Museum.

95. Erianthus bifidus, sp. nov.

Dark brown, with the carinæ of the face pale, and the legs with rather indistinct pale spots. Vertex almost perpendicularly raised between the eyes, and slightly notched at the extremity;

Fig. 76.—*Erianthus bifidus.*

pronotum strongly ridged, rectangular beyond the middle, and pointed behind. Tegmina slightly widened towards the apex, and truncated at the tip, hyaline, broadly brown along the longitudinal nervures, brownish towards the base, and with the outer third brown, marked with two or three irregular hyaline spots. Wings transparent, with the tip very acute and brown. Front femora broadened and flattened ; hind femora strongly serrated above ; hind tibiæ with a large triangular excrescence near the base, and with numerous short spines, interrupted by a few longer ones ; the legs are black, with paler spots, and the tibial spines are mostly black, but the appendage and the spines placed on the pale spaces are pale. Antennæ short, the basal half whitish, except the second joint which is black ; the outer half is brown.

Fig. 77.—*Erianthus bifidus* (larva).

Length 15 mm.; expanse of tegmina, 25 mm.

Ceylon : Kandy.

Type in the British Museum.

Taken 26th July, 1910 ; also larvæ in June, July, and October.

96. **Erianthus guttatus,** *Westw.*

Mastax guttata, Westwood, Arcana Ent. i, 1841, p. 100, pl. xxvi, fig. 3.
Erianthus guttatus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, pp. 222, 223.
Erianthus versicolor, Brunner, op. cit. pp. 222, 224.

Blackish, face and head below the eyes more or less yellow. Fastigium of the vertex erect, pointed ; antennæ thickened in the male, filiform in the female. Pronotum nearly smooth, with a slight median carina, and obtusely angulated behind ; the sides broadly and the extremity narrowly yellow. Tegmina brown, the interspaces subhyaline, and two large white spots, one on the costa near the tip and the other at five-sixths of the length

of the hind margin; hind margin regularly oblique. Wings hyaline, clouded towards the extremities. Abdomen much thickened before the extremity, and the lower valves in the female thick and strongly recurved.

Length 17–18 mm.; expanse of tegmina, 32–42 mm.

BURMA: Karen Hills, Pegu; MALAY STATES: Singapore; CAMBODIA; SUMATRA; PHILIPPINES.

Type in the British Museum; that of *E. versicolor* in the collection of Brunner von Wattenwyl.

Westwood does not mention, nor represent in his figure, the yellow borders of the pronotum.

97. **Erianthus lugubris**, *Brunn.*

Erianthus lugubris, Brunner, Abh. Senckenb. Ges. xxiv, 1898, pp. 222, 225; Saussure, Rev. Suisse Zool. xi. 1903, pp. 78, 83.

Olive-brown, face and under surface pale yellow. Fastigium of the vertex short, obtuse. Pronotum rounded at the tip, and sharply carinated above. Tegmina narrow, parallel-sided, uniform chestnut-brown; wings blackish, with white spots and markings towards the tip, or brownish hyaline, with blackish white-spotted tips.

Length 30 mm., tegmina, 17–21 mm.

SIKKIM.

98. **Erianthus defloratus**, *Brunn.*

Erianthus defloratus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 116; id., Abh. Senckenb. Ges. xxiv, 1898, pp. 222, 224; Saussure, Rev. Suisse Zool. xi, 1903, pp. 78, 81.

Chestnut-brown, face olive, sides of pronotum often yellowish. Fastigium of the vertex obtuse, carinated. Median carina of pronotum acute, but not lobate. Tegmina brown, more or less subhyaline towards the base, and with or without a subhyaline spot at three-quarters of the inner margin; wings yellowish. Hind femora unspotted.

Length 18 mm.; tegmina, 19 mm.

BURMA: Bhamo.

Type in the Genoa Museum.

99. **Erianthus acutipennis**, *Sauss.*

Erianthus acutipennis, Saussure, Rev. Suisse Zool. xi, 1903, p. 78, pl. iii, fig. 8.

Uniform chestnut-brown. Fastigium of the vertex raised, rather pointed, rugose in front. Pronotum strongly carinated, rectangular and truncated behind. Tegmina hooked and pointed at the tip, with two hyaline spots. Wings yellowish hyaline, darker towards the extremity, with two hyaline spots; the hind

margin slightly sinuated, and the tip pointed. Hind femora with brown and pale bands on the inner surface and beneath; the upper margin denticulated and the tip with a long hook; hind tibiæ obscurely banded with yellow.

Length 31 mm.; tegmina, 22 mm.

ASSAM: Khasi Hills.

Type in the Geneva Museum.

100. **Erianthus flavipes**, *Sauss.*

Erianthus flavipes, Saussure, Rev. Suisse Zool. xi, 1903, pp. 78, 79, pl. iii, fig. 10.

Chestnut-brown or reddish. Fastigium of the vertex rounded, cheeks rugose-punctate; face yellow to the vertex. Pronotum carinulated, not pointed in front. Tegmina pale chestnut, subhyaline, with two pale spots; obliquely truncated before the tip. Wings narrow, golden-hyaline. Four front legs concolorous; hind femora pale yellow, the tip narrowly black, and the base brownish.

Length 28 mm.; tegmina, 23 mm.

BURMA: Karen Hills.

Type in the Geneva Museum.

101. **Erianthus birmanicus**, *Sauss.*

Erianthus birmanicus, Saussure, Rev. Suisse Zool. xi, 1903, pp. 78, 82, pl. iii, fig. 12.

Head olive; fastigium of the vertex parallel-sided, truncated at the tip, slightly arched, as is also the occiput. Pronotum black, with a slightly crested and nearly straight carina. Tegmina narrow, subhyaline chestnut, with one hyaline spot at one-third of the length of the inner margin. Wings yellowish hyaline. Front legs slender, hind femora yellowish, more or less trifasciate with black; tibiæ and tarsi and abdomen above yellow.

Length 17·5 mm.; tegmina, 18·5 mm.

BURMA: Bhamo.

Type in the Geneva Museum.

102. **Erianthus humbertianus**, *Sauss.*

Erianthus humbertianus, Saussure, Rev. Suisse Zool. xi, 1903, pp. 78, 83, pl. iii, fig. 9.

Chestnut, varied with yellow. Head rather large, face broad; front between the antennæ broad, scutellum rather broader than long, foveolate; fastigium of the vertex short, quadrate, subconvex, broadly truncated at the tip. Pronotum saddle-shaped, carinulate. Tegmina very narrow, rounded at the tip, subhyaline, with brown nervures, and finely spotted with brown at the tip. Wings hyaline, rounded and slightly brownish at

the tips. Legs rather thick; front femora scarcely dilated, hind femora not banded with black; tibiæ with four yellow rings; tarsi yellow.

Length 26·5 mm.; tegmina, 21 mm.

CEYLON.

Type in the Geneva Museum.

Genus BENNIA.

Bennia, Burr, Ann. Soc. Españ. xxviii, 1899, pp. 88, 94, 106; id., Gen. Ins., Orth. Eumast. 1903, pp. 6, 9.

TYPE, *Mastax innotata*, Walk.

Range. Yunnan, Bhutan.

Fastigium of the vertex projecting horizontally beyond the eye, and truncated at the extremity; eyes very large, oval, and prominent; antennæ subclavate; face with lateral carinæ curved inwards at the eyes, middle carinæ moderately divergent, but united at the extremities.

Key to the Species.

Tegmina not spotted at base	*innotata*, Walk.
Tegmina spotted with brown at base........	*oberthuri*, Bol.

103. Bennia innotàta, *Walk.*

Mastax innotata, Walker, Cat. Derm. Salt. B.M. v, Suppl. 1871, p. 88.

Bennia innotata, Burr, Ann. Soc. Españ. Hist. Nat. xxviii, 1899, p. 106.

[Ferruginous, slender. Head elongate, obliquely but abruptly ascending; tip of vertex conical, prominent, slightly bilobed. Face long, oblique, with four well-defined keels; inner keels forming the frontal costa converging and meeting at a short distance from the clypeus; antennæ black, short, pale at the base; eyes elliptical, prominent. Prothorax short, widened posteriorly, with a slight median carina. Posterior femora as long as the abdomen; tibiæ slender, piceous, a little longer than the femora; spines small. Tegmina narrow, very slightly infuscate, hyaline, with two pale spots near the apex, the anterior one very small, the posterior one occupying six or eight of the cells. Wings slightly paler

Fig. 78.—*Bennia innotata.*

than the tegmina, transparent; the apical half of the costal margin dark brown.

Length 14 mm.; pronotum, 3 mm.; tegmina, 20 mm.; posterior femur, 3 mm.]

YUNNAN.

Type in the British Museum.

104. **Bennia oberthuri**, *Bol.*

Bennia oberthuri, Bolivar, Bol. Soc. Españ. iii, 1903, p. 303.

[Olivaceous. Head reddish, striped with fuscous behind the eyes; eyes red, variegated with yellow. Pronotum rugulose, anterior margin somewhat reflexed, median carina narrow, slightly compressed, posterior margin obtuse-angular; the deflexed lobes posteriorly distinctly higher, lower margin sinuate. Tegmina of male scarcely projecting beyond the apex of the hind femora, fuscous, with the veins olivaceous, the base spotted with fuscous; those of the female not reaching the apex of the femora. Wings of male obscurely fuscous, those of the female spotted with yellow. Posterior tibiæ reddish.

Length, ♂, body 20; pron. 2·8; tegm. 16; fem. post. 12 mm.
♀, „ 31; „ 4; „ 16; „ „ 16 „

BRITISH BHUTAN: Maria Basti.

Dr. Bolivar states (*l. c.*) that he has had this species in his collection under the manuscript generic name of *Butania*, but not being satisfied that it is distinct from *Bennia*, Burr, which is imperfectly defined, he adopts *Bennia* pending further investigation, and gives the following characters of his species:—

"Fastigium verticis dimidia longitudine oculi multo brevius obtusum, subhorizontaliter productum, antice truncatum. Occiput obtuse carinatum. Frons valde obliqua, elongata. Costa frontalis ante apicem abbreviata, ante ocellum subcoarctata, inter antennas ampliata atque deplanata; carinis lateralibus fronte prope oculos fractis. Oculi elongati. Antennæ breves. Pronotum in modum generum Eupatridem constructum. Elytra apicem femorum posticorum haud vel vix superantia apicem versus indistincte ampliata apice oblique rotundato-truncata. Alæ haud cycloideæ, fuscæ, parte antica apice rotundata. Femora compressa, carinis haud dilatatis. Femora postica elongata parum pone medium filiformia, supra carinis duabis denticulatis, subtus carina media mutica. Tibiæ posticæ superne carina externa spinulis parvis æque longis, carina interna spinis longioribus inæqualibus numero 20–22 armata. Metatarsus posticus superne carinis ambobus denticulatis. Abdomen ♂ apice valde clavatum. Valvulæ superiores ovipositoris elongatæ serrulatæ; inferiores grosse dentatæ."]

Group III. *GOMPHOMASTACINI.*

Genus GOMPHOMASTAX.

Gompohmastax, Brunner, Abh. Senckenb. Ges. xxiv, May 1898, p. 232; Burr, Ann. Soc. Españ. xxviii, 1899, pp. 89, 94, 107; id., Gen. Ins., Orth. Eumast. 1903, p. 9; Jacobs & Bianchi, Prem. Loz. Ross. Imp. 1902, pp. 164, 175, 211.
Pareraucius, Krauss, Ann. Mus. Zool. Pétersb. iii, June 1898, p. 108.

Type, *Gomphomastax antennatus*, Brunn.

Range. N.W. India, Central Asia.

Body slender. Frontal costa narrow between the antennæ, deeply sulcated, and produced to the labrum. Antennæ half as long as the head, with distinct joints, and more or less clavate. Pronotum short, subimpressed, with a median carina, and truncated behind. Tegmina and wings wanting. Anal segment narrow in the male; supra-anal lamina triangular, sulcated; subgenital lamina large and rounded. In the female the upper valves are crenulated, and the lower ones armed with a few teeth. Legs slender; as long as the abdomen in the female; longer in the male.

Key to the Species.

Antennæ nearly as long as the body, strongly thickened .... *antennatus*, Brunn.
Antennæ half as long as the body, slightly thickened .... *constrictus*, Brunn.

105. Gomphomastax antennatus, *Brunn.*

Gomphomastax antennatus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, p. 232, pl. xviii, fig. 34; Jacobs & Bianchi, Prem. Loz. Ross. Imp. 1902, pp. 175, 212.

Testaceous brown. Antennæ nearly as long as the body, clavate at the tips. Pronotum slightly compressed, olive-brown, banded with black on each side, and a black band interrupted by an oblique pale line on the first segment of the abdomen.

Length 15 mm.; pronotum, 2 mm.; hind femur, 12 mm.

Kashmir.

Type in the collection of Brunner von Wattenwyl.

106. Gomphomastax constrictus, *Brunn.*

Gomphomastax constrictus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, p. 233.

Antennæ scarcely half as long as the body, slightly thickened towards the tips. Pronotum rugose, with the deflexed lobes black, and the interior margin pale.

Length 11 mm.; pronotum, 2 mm.; hind femur, 9 mm.

Punjab.

Type in the collection of Brunner von Wattenwyl.

Group IV. *ERUCIINI.*

Genus MASTACIDES.

Mastacides, Burr, Ann. Soc. Españ. xxviii, 1899, pp. 89, 94, 111; id., Gen. Ins., Orth. Eumast. 1903, pp. 10, 11; Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 586; Saussure, Rev. Suisse Zool. xi 1903, p. 86.

Type, *Mastacides pupæformis*, Burr.

Range. South India.

Head obliquely ascending; frontal ridge between the antennæ very narrow, sulcated; fastigium of the vertex very slightly raised, front sloping, carinated; antennæ very short; eyes round, prominent. Pronotum truncated in front, with a very slight median carina indented behind. Tegmina rudimentary, wings wanting. All the femora thickened; the four front tibiæ with three small spines on each side; hind femora slightly denticulated above, first joint of hind tarsi spiny on the outer margin. Abdomen slender, carinated, with the last segment expanded in the male into a large subgenital lamina; the supra-anal lamina lobate. In the female the upper and lower laminæ are long, slender, and entire.

Key to the Species.

1 (4)	Vertex simple.	
2 (3)	Carinæ of vertex slightly raised....	*pupæformis*, Burr, p. 94.
3 (2)	Carinæ of vertex not raised	*pterolepis*, Burr, p. 95.
4 (1)	Vertex with two slight elevations..	*vaginalis*, Sauss., p. 95.

107. **Mastacides pupæformis**, *Burr.*

Mastacides pupæformis, Burr, Ann. Soc. Españ. xxviii, 1899, pp. 89, 91, 112; Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 587, pl. ix, fig. 27.

Pubescent, green, front yellow. Carina of the vertex slightly raised; eyes black; antennæ reddish, except the basal joint. Pronotum with the outer margin slightly waved. Tegmina very narrow, as long as the metanotum, yellow, with or without a brown line. Hind femora reddish on the inner side; hind tibiæ very narrow, pilose, with black-tipped spines; first joint of hind tarsi spined on the inner side only. Abdomen with the last dorsal segment deeply cleft in the male, and divided into two lobes sinuated on their inner side; supra-anal lamina of the male large, broad, oblong, sinuated on both sides at the tip, and sulcated in the middle; in the female it is lanceolate; subgenital lamina in male large, cucullated, with the hind margin truncated, turned up and thickened; subgenital lamina of female deeply excised.

Length 12–16 mm.; pronotum, 1·8–2 mm.; hind femur, 9–10 mm.

Madras: Kodaikanal.

Type in the collection of Dr. Bolivar.

108. **Mastacides pterolepis**, *Burr.*

Mastacides pterolepis, Burr, Ann. Soc. Españ. xxviii, 1889, pp. 89, 111, 112; Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 588, pl. ix, fig. 28.

Greenish, front yellow. Fastigium of the vertex scarcely raised above the eyes, with the margins scarcely thickened; eyes very prominent. Tegmina very short, like yellow scales, only extending to the hind border of the mesonotum. Last dorsal segment of the abdomen in the male broadly and semicircularly sinuated, with the lateral angles sharply produced, and the median sinus bidentate. Supra-anal lamina broadly longitudinally carinated in the middle, and lanceolate in the female. Subgenital lamina large, obtusely triangular in the middle behind, and in the female deeply excised.

Length 13–14 mm.; pronotum, 2 mm.; hind femur, 9–11 mm.

MADRAS: Madura, Kodaikanal.

Type in the collection of Dr. Bolivar.

109. **Mastacides vaginalis**, *Sauss.*

Mastacides vaginalis, Saussure, Rev. Suisse Zool. xi, 1903, p. 87.

Green or yellow. Costal ridge sulcated, bicarinate, with the summit somewhat broader, and bipupillate. Tegmina squamiform, very narrow, lateral, hardly passing the mesonotum. Front legs slender, tibiæ spined beneath; tibiæ and tarsi yellow (sometimes rosy in dried specimens) with black-tipped spines; the hind femora sometimes brown and black on the outer surface; the first tarsal joint rufescent, finely sulcated. The eighth dorsal segment of the abdomen wholly visible, obtuse-angularly incised, with the lateral angles rectangular, or rounded off. Supra-anal lamina long, ovate-lanceolate, blunt at the tip. Genital valves long, very slender, styliform, hardly sulcated, nearly straight, with the margins entire, blunt above at the tip, with a very small hook beneath.

Length 14 mm.; tegmina, 1·5 mm.; hind femur, 10 mm.

MADRAS: Kodikam Hills.

Type in the collection of the late Capt. Finot.

Subfamily III. TRYXALINÆ.

Key to the Genera.

[1 (6) Head conically ascending. Fastigium broad, laminate and truncate at extremity.

2 (5) Eyes near the apex.

3 (4) Sexes similar; front margin of tegmina opaque, densely reticulated. ACRIDA, L., p. 97.

4 (3) Sexes dissimilar; front margin of tegmina in the male in part transparent and traversed by regular transverse nervures .... ACRIDELLA, Bol., p. 100.

5 (2) Eyes nearer the base than the apex. ASWATTHAMANUS, g. n., [p. 101

6 (1) Head not ascending. Fastigium broad or narrow, more or less rounded at extremity.

7 (20) Foveolæ of vertex obsolete or not visible from above.

8 (15) Scapular area in the tegmina of the male not dilated, opaque, reticulated.

9 (14) Lateral carinæ of pronotum straight, continuous.

10 (11) Wings perfectly developed .... PHLÆOBA, Stål, p. 102.

11 (10) Wings not developed; tegmina rudimentary.

12 (13) Lateral carinæ of fastigium obtuse; foveolæ imperfectly indicated; pronotum emarginate behind; tegmina narrow, subparallel-sided, rounded at apex .... PHLÆOBIDA, Bol., p. 107.

13 (12) Lateral carinæ of fastigium acute; foveolæ absent; pronotum truncate behind; tegmina lanceolate. PARAPHLÆOBA, Bol., [p. 108.

14 (9) Lateral carinæ of pronotum diverging posteriorly .... CERACRIS, Walk., p. 110.

15 (8) Scapular area dilated, hyaline, reticulated with oblique veins.

16 (17) Foveolæ of fastigium very narrow, inferior; antennæ depressed, subensiform; lateral carinæ of pronotum straight; metasternal lobes contiguous for some distance behind the foveæ .... OCHRILIDIA, Stål, p. 115.

17 (16) Foveolæ wider; antennæ filiform; lateral carinæ of pronotum flexuous; metasternal lobes subcontiguous behind the foveæ.

18 (19) Tegmina extending beyond the apex of abdomen .... GYMNOBOTHRUS, Bol., [p. 113.

19 (18) Tegmina reaching the middle of the abdomen .... MADUREA, Bol., p. 114.

20 (7) Foveolæ of vertex visible from above, rhomboidal, oblong or triangular.

21 (22) Tegmina rudimentary; foveolæ of vertex triangular, extended to apex of fastigium .... ZYGOPHLÆOBA, Bol., [p. 105.

22 (21) Tegmina and wings developed.

23 (34) Intercalated vein wanting or interrupted.

24 (33) Valvulæ of ovipositor exserted, free.

25 (32) Pronotum constricted.

26 (29) Mediastinal area of tegmina gradually narrowed to the apex.

27 (28) Upper and lower valves of ovipositor furnished with a tooth .... STENOBOTHRUS, Fischer, [p. 120.

28 (27) Valves without teeth.

29 (26) Mediastinal area rapidly narrowing, not generally extended beyond the middle of the tegmen.

30 (31) Lateral carinæ of pronotum angulated .... STAURODERUS, Bol., [p. 127.

31 (30) Lateral carinæ parallel .... CHORTHIPPUS, Fieb., [p. 128.

32 (25) Pronotum not constricted; lateral carinæ entirely dorsal .... AULACOBOTHRUS, Bol., [p. 123.

33 (24) Valves of ovipositor covered by the supra-anal lamina .... DOCIOSTAURUS, Fieb., [p. 116.

34 (23) Intercalated vein present.

35 (36) Intercalated vein in the middle of cell or nearer the radial vein.... ÆOLOPUS, Fieb., p. 121.

36 (35) Intercalated vein nearer the ulnar than the radial................ MECOSTETHUS, Fieb., [p. 112.

Genus ACRIDA.

Gryllus Acrida, Linnæus, Syst. Nat. (ed. x) i, 1758, p. 427.
Acrida, Stål, Recens. Orth. i, 1873, pp. 88, 95; Burr, Trans. Ent. Soc. Lond. 1902, pp. 149, 155.
Truxalis, pt., Fabricius, Syst. Ent. 1775, p. 279; Serville, Ins. Orth. 1839, p. 578.
Tryxalis, Brullé, Hist. Nat. Ins. ix, 1835, p. 216; Bolivar, Feuille Jeunes Nat. xxiii, 1893, p. 161.

TYPE, *Acrida turrita*, L.

Range. Old World.

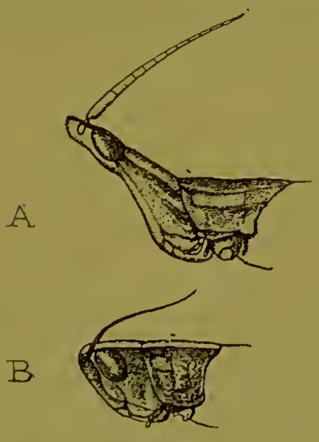


Fig. 79.—Side view of head of (A) *Acrida*, (B) *Stauroderus*.

Head very long, sloping upwards, fastigium of the vertex extended considerably in front of the eyes, broader than the space between them, and roundly truncate at the extremity; beneath the extremity there is a double carina, traversing the face to the end of the clypeus, and enclosing the median ocellus; below the eyes, and $\frac{2}{3}$ of the length from the tip of the fastigium are the antennæ, which are short, broad, depressed, and tapering; behind each antenna runs a lateral carina below the eye, and there are two more behind each eye, besides a slight median carina; the eyes long, oval; the foveolæ of the vertex small, triangular, and inferior. Pronotum tricarinate above, and with obscure carinæ on the sides; lateral carinæ straight, at least on the front area, the upper carina of the lateral lobes parallel to

the dorso-lateral carina, or slightly diverging from it towards the front border. Tegmina and wings long, narrow, and pointed; tegmina similar in both sexes, with the mediastinal and scapular areas not expanded and irregularly reticulated and coloured; the third radial nervure of the tegmina and the first branch of the radial nervure of the wings branching at or before the middle. Front legs short, hind legs and abdomen long; hind tibiæ with the upper interior spur nearly one-half shorter than the lower one; claws of the tarsi short; arolium large.

Key to the Species.

1 (4) Wing-cells not centred with fuscous.	
2 (3) Body and tegmina without pinkish markings; pronotum without black lines	*turrita*, L., p. 98.
3 (2) Body and tegmina with pinkish markings	*gigantea*, Hbst., p. 98.
4 (1) Wing-cells centred with fuscous.	
5 (6) Tegmina very narrowly edged with pinkish-brown; length of body 30 mm. . .	*lugubris*, Burr, p. 99.
6 (5) Tegmina without distinct coloured margin; length of body 50 mm.	*exaltata*, Walk., p. 99.

110. **Acrida turrita**, *L.*

Gryllus Acrida turritus, Linnæus, Syst. Nat. (ed. x) 1758, p. 427.
Gryllus Acrida nasutus, pt., Linnæus, Mus. Ludov. Ulric. 1764, p. 118.
Truxalis nasutus, Fabricius, Syst. Ent. 1775, p. 279.

Green; tegmina long, narrow and pointed, extending when closed beyond the abdomen; head slender, longer than the pronotum by the length of the fastigium in front of the eyes; wings hyaline, pointed at the extremity.

S. Europe; Africa; Asia.

111. **Acrida gigantea**, *Hbst.*

Truxalis giganteus, Herbst, Fuessly, Archiv. Ins. 1794, p. 191, pl. lii, fig. 6.

Head slightly, if at all, longer than the pronotum, and often shorter. Green; head and pronotum with 2 or 3 pale pink bands on each side; tegmina with two broad pink longitudinal bands, between which is often a whitish line, generally broken into long spots, bordered with blackish; wings hyaline. Lateral carinæ of pronotum edged within with a black line. In one specimen the wings are tessellated with brown, almost as in *A. lugubris*.

Length 50–60 mm.

Nepal; Africa.

112. **Acrida exaltata**, *Walk.*

Truxalis exaltata, Walker, Ann. Nat. Hist. (3) iv, 1859, p. 222.
Tryxalis brevicollis, Bolivar, Feuille Jeunes Nat. xxiii, 1893, pp. 162, 164; id., Ann. Soc. Ent. France, lxx, 1892, p. 588.
Acrida brevicollis, Burr, Trans. Ent. Soc. Lond. 1902, pp. 157, 170.

Green; the head and pronotum of about equal length; tegmina obtusely pointed, scarcely longer than the hind femora; wings yellowish hyaline, the cells in the posterior part cloudy in the middle.

Length 53 mm.

CEYLON.

Fig. 80.—*Acrida exaltata.*

Fig. 81—*Acrida lugubris.*

113. **Acrida lugubris**, *Burr.*

Acrida lugubris, Burr, Trans. Ent. Soc. Lond. 1902, pp. 157, 170.

Green; head only slightly longer than the pronotum, and the antennæ about as long as the head and pronotum together. Tegmina green, hardly longer than the wings, and moderately pointed; often narrowly bordered with pink, and with a few

dusky spots towards the extremity. Wings hyaline, tessellated with brown.

Length 33 mm.

KASHMIR: Hunza; MADRAS.

Genus ACRIDELLA.

Acridella, Bolivar, Feuille Jeunes Nat. xxiii, 1893, p. 163.

TYPE, (*Truxalis unguiculata*, Ramb. =) *Acrida nasuta*, L.

Range. S. Europe, Africa, Southern and Western Asia.

General characters of *Acrida*, but the tegmina are differently formed in the sexes. In the males the mediastinal and scapular areas are enlarged towards the middle of the tegmina, and their spaces are usually transparent, and traversed by more or less regular nervures; the third radial nervure of the tegmina and the first branch of the radial nervure of the wings branch beyond the middle of the tegmina and the wings respectively. The lateral carinæ of the pronotum are flexuous, and curve upwards in front, being convex and divergent towards the metanotum. The upper inner terminal spur of the hind tibiæ is one-half shorter than the lower inner spur; claws of the tarsi sometimes half as long as the third joint of the tarsi; arolium small. Wings generally brightly coloured; always with the transverse nervures thickened.

114. **Acridella nasuta**, *L.*

Gryllus Acrida nasutus, Linnæus, Syst. Nat. (ed. x) i. 1758, p. 427.
Truxalis scalaris, Klug, Symb. Phys. 1830, pl. xv, figs. 2–4.
Truxalis miniata, Klug, Symb. Phys. 1830, pl. xviii, figs. 3, 4 (*nec* 1, 2).
Truxalis variabilis, Klug, Symb. Phys. 1830, pl. xvii, figs. 3–6.
Truxalis procera, Klug, Symb. Phys. 1830, pl. xvi, figs. 2, 3.
Truxalis conspurcata, Klug, Symb. Phys. 1830, pl. xvii, fig. 1.
Truxalis unguiculata, Rambur, Faune Andal. ii, 1839, p. 72.
Acrida nasuta, Stål, Recens. Orth. i, 1873, p. 99.

A rather slender species. Colour greenish brown, head and pronotum darker above than on the sides. Head as long as or longer than the pronotum, fastigium above with a central ridge. Pronotum considerably raised behind, with lateral carinæ edged with black; median carina almost obsolete; seen laterally there are two waved carinæ on the upper part of the pleura, and on the hinder half an oblique white one below them. Antennæ broadly flattened, tapering at the extremity. Tegmina narrow, pointed, longer than the wings, green, with the costal area subhyaline, especially in the male; a brown bar, undulated above, and followed by detached spots, runs longitudinally through the middle of the wing; the inner marginal area is often reticulated with reddish in the male. Wings moderately broad, pointed at the tips, hyaline, or yellowish hyaline, with all the oblique nervures tessellated with black; the basal half is red in the female, and often in the male, the extreme base being marked with bluish.

Length, body, 35–70 mm.; expanse of tegmina, 60–121 mm.

SOUTH EUROPE; AFRICA; WESTERN ASIA; BALUCHISTAN; INDIA; CEYLON; BURMA.

Genus **ASWATTHAMANUS**, nov.

TYPE, *Aswatthamanus cylindricus*, sp. nov.

Range. India.

Head and pronotum smooth, cylindrical; eyes large, oval: head not raised; fastigium of the vertex very long, extending as far beyond the eye as the length of the pronotum, and narrowed and obtusely rounded at the apex; frontal ridge narrow, sulcated, obsolete towards the mouth, lateral carina not strongly marked, but distinct, and continuous with the lower lateral border of the pronotum; frontal tubercle very small. Antennæ much widened and flattened towards the base, and tapering to a point at the extremity, about as long as the head and pronotum together; inserted on the lower surface, just before the tip of the fastigium. Tegmina and wings very long, narrow, and pointed. Front and middle legs very short, hind legs very long and slender, hind tibiæ with 10–11 spines on the outer (terminal spine absent) and 12 on the inner edge.

115. **Aswatthamanus cylindricus**, sp. nov.

Light brown, inclining to reddish; tegmina very long, narrow, and pointed, subhyaline, with rufous nervures; wings hyaline,

Fig. 82.
Aswatthamanus cylindricus, ♂.

Fig. 83.—*Aswatthamanus cylindricus*, ♀.

long, narrow, and pointed, but much shorter than the tegmina; hind tibiæ red.

Length 40–50 mm.; head, 14 mm.; pronotum, 8 mm.; antennæ, 20 mm.; tegmina, 40 mm.; wings, 35 mm.

BENGAL: Pusa.

Common on grass from July to November.

Genus PHLÆOBA.

Phlæoba, Stål, Eugenie's Resa, Orth. 1860, p. 360.

TYPE, *Gomphocerus* (*Phlæoba*) *rusticus*, Stål.

Range. The Oriental Region.

Head as long as, or shorter than, the pronotum, and equally broad; face somewhat oblique, fastigium produced as far before the eye as the head behind the eye, as broad as the length of the eye, and obtusely rounded at the extremity; the branching lateral carinæ run within each eye, often continuous on the head, and a continuous median carina traverses the head and pronotum; face with a double median carina, diverging below, and with carinæ within the eyes, also curving outwards. Antennæ ensiform, as long as or longer than the head and pronotum together, with the basal half widened and flattened. Wings and tegmina of equal length, perfectly developed, and as long as or rather longer than the abdomen. Legs moderately long, without special armature; hind femora moderately thickened at the base and as long as the abdomen; hind tibiæ spinose.

Key to the Species.

[1 (6) Wings more or less fuscous at apex.
2 (3) Antennæ unicolorous .... *infumata*, Brunn., p. 103.
3 (2) Antennæ ringed or tipped with obscure yellow.
4 (5) Posterior tibiæ sordid blue or reddish . *antennata*, Brunn., p. 102.
5 (4) Posterior tibiæ testaceous .... *angustidorsis*, Bol., p. 104.
6 (1) Wings hyaline.
7 (8) Posterior tibiæ unicolorous; pronotum very rugulose .... *panteli*, Bol., p. 104.
8 (7) Posterior tibiæ with a distinct yellow ring near the base; pronotum comparatively smooth .... *cinctalis*, sp. n., p. 105.]

116. Phlæoba antennata, *Brunn.*

Phlæoba attennata, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 125, pl. v, fig. 49.

Olive-brown, with a broad yellow band running from the vertex to the end of the tegmina, at least in the male. Antennæ ensiform, half as long again as the head and pronotum together (shorter in the female); black, generally tipped with yellow.

Pronotum smooth, with the three carinæ well marked, and the hind border only slightly convex. Tegmina narrow, the costa slightly expanded near the base, especially in the female; the extremity obtusely rounded off. Wings bluish hyaline, sometimes with the dividing line yellow; infuscated towards the tips. Legs reddish in the male; the hind legs with the knees and base

Fig. 84.—*Phlæoba antennata*, ♂.

Fig. 85.—*Phlæoba antennata*, ♀.

and tip of the tibiæ blackish; hind legs uniform blackish in the female; sometimes the hind tibiæ are bluish instead of reddish, as described by Brunner.

Length, body, 18–32 mm.; antennæ, 10–13 mm.; pronotum, 3·5–6·5 mm.; tegmina, 13–23 mm.; hind femur, 12–19 mm.

ASSAM: Sylhet; BURMA; MALAY PENINSULA; SUMATRA; BORNEO, &c.

117. Phlæoba infumata, *Brunn.*

Phlæoba infumata, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 124.

Uniform brownish testaceous. The fastigium of the vertex rather short and obtuse, concave above, with a continuous median carina extending along the head and pronotum. Antennæ ensiform, as long as or longer than the head and pronotum together. Pronotum rugose, with a rudimentary carina on each side between the median and lateral carinæ. Tegmina and wings longer than the abdomen; wings fusco-hyaline, infuscated towards the

extremity. Hind femora dotted with black on the outer carinæ; hind tibiæ with white spines tipped with black; hind tarsi reddish.

Fig. 86.—*Phlæoba infumata*, ♂.

Length 25–29 mm.; antennæ, 10·5–11·5 mm.; pronotum, 4·2–6·4 mm.; tegmina, 19–27 mm.; hind femur, 13–18 mm.
BURMA: Pegu; TENASSERIM.

118. **Phlæoba angustidorsis**, *Bol.*

Phlæoba angustidorsis, Bolivar, Ann. Soc. Ent. France, lxx, 1892, p. 590.

Ferruginous brown, the male with a yellow band extending to the tip of the tegmina. Fastigium of the vertex shorter than the eye, smooth, carinated in the middle. Pronotum very narrow, with the lateral carinæ parallel, or slightly convergent behind in the male. Tegmina barely reaching the tip of the abdomen, or shorter. Wings bluish hyaline, infuscated towards the tips. Hind femora pale ferruginous, with brown knees; hind tibiæ testaceous.
Length 19–32 mm.; antennæ, 10–12 mm.; pronotum, 4–6 mm.; tegmina, 10–12 mm.
MADRAS: Kodaikanal.
Types in the collections of Messrs. Pantel and Bolivar.

119. **Phlæoba panteli**, *Bol.*

Phlæoba panteli, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 589.
Phlæoba walhousei, Kirby, Syn. Cat. Orth. iii, 1910, p. 138.

Xiphocera fumida, var., Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 513.

Ferruginous brown, with scattered black dots. Antennæ narrowly ensiform, shorter than the head and pronotum together, brown at the tips. Vertex horizontal, with the marginal carinæ converging behind the eyes, fastigium broad, rounded in front, the median carina continued on the head and pronotum; front slightly oblique, all the frontal carinæ spotted with black. Pronotum truncated in front, and very obtusely angulated behind, the head and pronotum very rugose, the callosities being irregularly striated; the three dorsal carinæ parallel. Tegmina moderately broad, longer than the abdomen, narrowed and obliquely truncated towards the tip; wings narrow, bluish hyaline, with many of the nervures greenish.

Fig. 87.—*Phlæoba panteli.*

Length 30 mm.; pronotum, 4 mm.; tegmina, 26 mm.; hind femur, 17 mm.

MADRAS: Madura.

Types in the collections of Messrs. Pantel and Bolivar.

120. **Phlæoba cinctalis**, sp. nov.

Brown, with a broad dull yellowish band on the back, between the lateral carinæ, which is continued along the inner margin of the tegmina; lateral carinæ edged below externally with a rather narrow blackish stripe; tegmina subhyaline brown, with the longitudinal nervures darkened and slightly thickened, the inner margin yellowish. Wings hyaline, antennæ brown. Hind tibiæ blue-black, with a pale band near the base.

Length 23–33 mm.; wing, 50–64 mm.

BENGAL: Pusa.

Type in the British Museum.

Common on grass, sweet potatoes, &c., in July and August.

Genus ZYGOPHLÆOBA.

Zygophlæoba, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 591.

TYPE, *Zygophlæoba sinuatocollis*, Bol.

Range. India.

Body moderately long, compressed. Fastigium of the vertex triangular, with the margins raised, and above with triangular foveolæ extending to the tip of the vertex; the latter with the median carina obsolete behind, and with an incomplete curved lateral carina approximate to the eyes; face sloping; frontal

carina sulcated, expanding towards the clypeus. Antennæ flattened at the base, and suddenly arched in the middle. Pronotum in front roundly truncate, behind truncate or excised, with three complete parallel carinæ, and the lateral carinæ twice interrupted, the hind sulcus placed much behind the middle, and the metazona impressed-punctate. Tegmina and wings rudimentary. Hind femora short, with the outer area moderately convex. Mesosternal lobes narrow, transverse, separated by a space equal to one of them; metasternal lobes contiguous behind the foveolæ in both sexes. Abdomen carinated above, the first segment furnished with an open tympanum.

121. **Zygophlæoba sinuatocollis**, *Bol.*

Zygophlæoba sinuatocollis, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 591.

Pale ferruginous, dotted with black. Face oblique; frontal costa (viewed from the side) sinuated between the median ocellus and the antennæ; foveolæ of the vertex extending nearly to the tip of the fastigium. Pronotum excised behind. Tegmina oblong, subparallel-sided, rounded at the tip. Mesosternal lobes very narrow, strongly transverse. Abdomen above with a longitudinal subcallous ridge on each side.

Length 15·5 mm.; pronotum, 2 mm.; tegmina, 1·8 mm.; hind femur, 6·8 mm.

MADRAS: Trichinopoly.

Type in the collection of St. Joseph's College, Trichinopoly.

122. **Zygophlæoba truncaticollis**, *Bol.*

Zygophlæoba truncaticollis, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 591.

Grey, varied with brown. Face moderately oblique; frontal ridge entire, not sinuated; foveolæ of the vertex trapezoidal, the space between them convex. Pronotum truncated behind, with the lateral carinæ whitish, the deflexed lobes bordered within with brown. Tegmina oblong-lanceolate, grey, with the outer margin brown. Mesosternal lobes less transverse than in *Z. sinuatocollis*. Abdomen without lateral carinæ, but banded with brown on the sides.

Length 17 mm.; pronotum, 3 mm.; tegmina, 3 mm.; hind femur, 9 mm.

MADRAS: Trichinopoly.

Type in the collection of St. Joseph's College, Trichinopoly.

Genus PHLÆOBIDA.

Phlæobida, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 592.

TYPE, *Paraphlæoba angustipennis*, Bol.

Range. India.

Body moderately long and moderately compressed. Fastigium of the vertex triangular, with the lateral carinæ obtuse and continued as a short carina behind each eye; foveolæ imperfectly developed; vertex with a median carina extending from the base to the end of the fastigium; face sloping, frontal ridge between the antennæ moderately elevated, smooth, then sulcated, the marginal carinæ somewhat expanded at the base, slightly approximating at the ocellus, and diverging towards the clypeus. Antennæ with the basal half depressed, much longer than the head and pronotum together in the male, and scarcely so long in the female. Pronotum tricarinate above, with the lateral carinæ almost parallel; truncated in front, and convex behind, with a transverse sulcus intersecting the carinæ behind the middle. Tegmina very short, narrow, nearly parallel-sided, and rounded at the tips; wings obsolete. Hind femora long, smooth externally. Mesosternal lobes united by a space nearly equal to their breadth, subcontiguous behind in the male, and slightly separated in the female. First abdominal segment with an open tympanum; abdomen compressed, carinated above; subgenital lamina in the male shortly acuminate; valves of the ovipositor short.

123. Phlæobida angustipennis, *Bol.*

Paraphlæoba angustipennis, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 592, 593, pl. ix, fig. 30.

Pale reddish, punctured with brown and with grey pubescence; a broad brown stripe running from the eyes to the tip of the abdomen; or the head and pronotum not striped. Fastigium of the vertex oblong or triangular, with the margins obtuse and punctured, and furnished with indistinct triangular foveolæ; vertex with a slight median carina, obsolete behind. Pronotum angularly excised behind, the lateral carinæ almost parallel as far as the hind sulcus, which is situated much behind the middle, and then widely diverging. Tegmina narrow, the margins parallel, and the tip rounded. Lobes of the mesosternum separated by a rather narrow space; the metasternal lobes contiguous behind the foveolæ in the male, and slightly separated in the female. Hind femora banded with brown externally.

♂. *Length* 15 mm.; pronotum, 2·8 mm.; tegmina, 2·5 mm.; hind femur, 9 mm.

♀. *Length* 24 mm.; pronotum, 4·5 mm.; tegmina, 3·5 mm.; hind femur, 13 mm.

MADRAS: Trichinopoly.

Types in the collection of St. Joseph's College, Trichinopoly.

Genus PARAPHLÆOBA.

Paraphlæoba, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 592, 593.

Type, *Paraphlæoba platyceps*, Bol.

Range. India, Ceylon.

General characters of *Phlæobida*, but the carinæ of the vertex are acute, without foveolæ, the pronotum is truncated both before and behind, and the rudimentary tegmina are more or less pointed.

Key to the Species.

1 (2) Pronotum expanded behind, with the dorsal carinæ distinctly converging behind	*platyceps*, Bol., [p. 108.
2 (1) Pronotum not expanded behind, with the lateral carinæ parallel, not diverging behind.	
3 (4) Pronotum nearly smooth	*carinata*, Bol., [p. 108.
4 (3) Pronotum rugulose	*simoni*, Bol., p. 109.

124. Paraphlæoba platyceps, *Bol.*

Paraphlæoba platyceps, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 593, pl. ix, fig. 29.

Rusty grey, or brown, pubescent. Frontal ridge almost completely sulcated, towards the clypeus deeply impress-punctate; fastigium of the vertex smooth, triangular, transverse in the male, and in the female as long as broad, and forming an obtuse angle in front; the median carina interrupted by a transverse sulcus before the tip. Pronotum with the surface rugulose, impresso-punctate behind, truncated, often very slightly excised in the middle, with the lateral carinæ callous, distinctly diverging behind, and externally bordered with brown; the deflexed lobes with the hind margin sinuated, and the lower margin obtusely angulated behind the middle. Hind knees infuscated. Abdomen with a broad brown fascia on each side, with a narrow pale border within.

♂. *Length* 15 mm.; pronotum, 2·8 mm.; tegmina, 2·8 mm.; hind femur, 10 mm.

♀. *Length* 26 mm.; pronotum, 4·5 mm.; tegmina, 4·5 mm.; hind femur, 15 mm.

Madras: Kodaikanal.

Types in the collections of Messrs. Pantel and Bolivar.

125. Paraphlæoba carinata, *Bol.*

Paraphlæoba carinata, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 593, 594.

Greyish brown or ferruginous, with grey pubescence. Frontal

ridge sulcate nearly to the base, indistinctly punctured towards the clypeus; fastigium of the vertex convex, triangular, with no transverse sulcus; the median carinæ not intersected in front. Pronotum with the surface nearly smooth, the metazona impress-punctate; the lateral carinæ parallel, pale, interrupted by the usual sulcus, and bordered with brown externally, the deflexed lobes with the hind margin sinuate, and the lateral margin sinuated in front, and roundly subangulate in the middle. Tegmina extending to the first segment of the abdomen, acutely lanceolate, rather convex, the lower margin more or less sinuated before the tip; red, brownish beneath. Abdomen with a broad brown band on each side, lined with yellow internally.

♂. *Length* 12 mm.; pronotum, 2·2 mm.; tegmina, 2·8 mm.; hind femur, 8·5 mm.

♀. *Length* 20 mm.; pronotum, 3·8 mm.; tegmina, 3·8 mm.; hind femur, 12·5 mm.

MADRAS: Madura.

Types in the collections of Messrs. Pantel and Bolivar.

126. **Paraphlæoba simoni**, *Bol.*

Paraphlæoba simoni, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 593, 594.

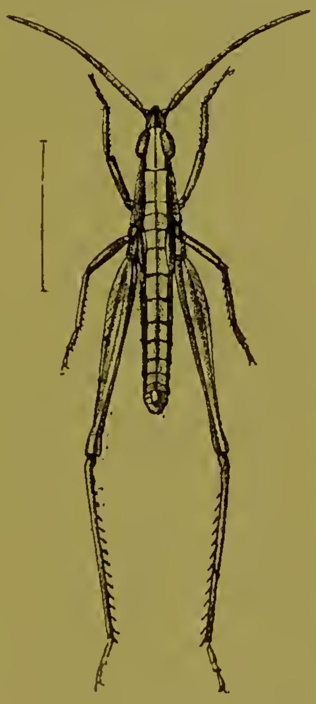


Fig. 88.
Paraphlæoba simoni, ♂.

Reddish brown. Frontal ridge narrow as far as the eyes, parallel-sided, and then considerably expanded; fastigium of the vertex triangular, moderately produced, smooth, with the carinæ distinctly raised. Antennæ slightly dilated, subfiliform, extending rather beyond the hind border of the pronotum in the male. Pronotum with the surface rugulose, the lateral carinæ parallel, the deflexed lobes with the hind margin indistinctly sinuated, and the lower margin obtusely narrowed. Tegmina extending to the third segment of the abdomen, acutely lanceolate, convex. Abdomen with a broad brown band on the sides.

♂. *Length* 14 mm.; pronotum, 3 mm.; tegmina, 4 mm.; hind femur, 9·5 mm.

CEYLON: Nuwara Eliya.

Type in the collection of Dr. Bolivar.

Genus CERACRIS.

Ceracris, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 790.

Type, *Ceracris nigricornis*, Walk.

Range. India, Burma.

Moderately stout; head and pronotum punctured; antennæ filiform, much longer than head and pronotum together; fastigium of the vertex horizontal, produced beyond the eyes about as far as the length of the head behind the eyes; eyes very large, slightly oval and oblique, separated at the narrowest point by a space nearly equal to that of the fastigium before them; fastigium slightly curving outwards in front of the eyes, and then obtusely rectangulated in front; the sides strongly carinated as far as the eyes, and the space between depressed, with a slight carina in front only; face moderately oblique, with the median carinæ well separated and nearly parallel above, and divergent below; and lateral carinæ running downwards from within the eyes. Pronotum rugose-punctate, with three not very strong carinæ, the lateral ones distinctly diverging behind, and cut by three sulci, the space behind the last more thickly and finely punctate. Abdomen with a very strong raised median carina, not quite extending to the extremity. Tegmina and wings well-developed, as long as or longer than the abdomen, as are also the hind femora. Four front tibiæ slightly pilose, shortly spinose beneath beyond the middle; hind femora rather slender, with the usual angulated ridges on the outer central area; hind tibiæ spined above.

Key to the Species.

1 (2) Hind femora partly red beneath	*versicolor*, Brunn., p. 111.
2 (1) Hind femora not red beneath.	
3 (4) Hind tibiæ wholly blue beyond the yellow ring near the base	*deflorata*, Brunn., p. 112.
4 (3) Tibiæ varied with black and yellow beyond the yellow ring near the base........................	*nigricornis*, Walk., p. 110.

127. Ceracris nigricornis, *Walk.*

Ceracris nigricornis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 791.

Testaceous-brown. Head rugosely punctate, slightly convex above, with a dusky longitudinal curved depression on each side, but without distinct carinæ behind the eyes; a black band behind each eye, followed by a black line below the lateral carinæ; antennæ black, and a black spot on each side at the lower corners of the clypeus; the sutures of the mouth-parts slightly blackish,

Tegmina yellowish along the inner margin; wings hyaline. Hind femora with a blackish band near the extremity, interrupted above, and the sides and base beneath of the terminal thickening black; a broad pale-coloured lamina on each side at the extremity beneath; hind tibiæ black at the base with a yellow spot above; then follows a broad yellowish ring, then a black ring continued nearly to the extremity by a black line above and another below, the rest being yellowish; spines tipped with black, 10 on each side, increasing in length towards the tip, in addition to the usual terminal ones.

Fig. 89.—*Ceracris nigricornis.*

Length 32 mm.; hind femur, 16 mm.; expanse of tegmina, 50 mm.

SIKKIM: Darjiling.

Type in the British Museum.

Walker describes this insect as "gracillimum," probably because the body of the type has been laterally flattened.

128. **Ceracris versicolor**, *Brunn.*

Duronia versicolor, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 126.

Olive-brown, legs varied with black, yellow, and red. Fastigium of the vertex obtuse. Antennæ filiform, much longer than the head and pronotum together. Pronotum wholly impress-punctate, with the lateral carinæ slightly indicated, and the principal transverse sulcus placed somewhat behind the middle. Tegmina rather longer than the abdomen, the costal area smooth, green, and the deflexed area brownish olive; wings bluish-hyaline, slightly clouded. Abdomen uniform olive. Hind femora brownish olive, beneath red to the middle, then black, with a yellow apical ring; hind tibiæ black at the base, followed by a yellow ring, the longitudinal sulcus above black to the extremity, the sides blue, and 9 or 10 white spines tipped with black on each side.

Length 26 mm.; antennæ, 12 mm.; pronotum, 5·8 mm.; tegmina, 22 mm.; hind femora, 16 mm.

BURMA: Karen Hills.

Type in the Genoa Museum.

129. **Ceracris deflorata**, *Brunn.*

Duronia deflorata, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 126.

Dull olive, the femora not ringed. Vertex less obtuse than in *C. versicolor*. Pronotum above nearly smooth, with the lateral carinæ well marked, bordered with straight black bands and diverging behind the transverse sulcus, which is placed in the middle. Tegmina one-fourth longer than the abdomen, with the costal area smooth, pale, the deflexed area brown; wings yellowish-hyaline, slightly clouded. Hind femora testaceous, darker at the tip; beneath suffused with red, with no ring. Hind tibiæ black at the base, followed by a yellow ring, then wholly blue, with 11 or 12 black-tipped spines on each side.

Length 28 mm.; antennæ, 12·5 mm.; pronotum, 5·5 mm.; tegmina, 27 mm.; hind femur, 16 mm.

BURMA: Bhamo.

Type in the Genoa Museum.

Genus **MECOSTETHUS.**

Mecostethus, Fieber, Kelch, Orth. Oberschles. 1852, p. 1.
Parapleurus, Fischer, Orth. Eur. 1853, pp. 297, 363.

TYPE, *Gryllus parapleurus*, Hagenb.

Range. Europe, Asia.

Fastigium of the vertex horizontal, broader than long, rounded at the sides, and roundly truncate in front, the surface depressed, with a central carina, very slightly continued on the rest of the head; foveolæ obsolete. Antennæ filiform, twice as long as head and pronotum together in the male, and scarcely equal to the pronotum in the female; eyes prominent, subrotund; face slightly oblique; frontal carina rather broadly sulcated from the middle ocellus to the clypeus. Pronotum with the median carina strongly marked; the lateral carinæ obsolete; cut by three transverse sutures, the hindmost about the middle; the deflexed lobes slightly oblique behind, and the lower edge slightly sinuated; pronotum hardly rounded in front, and only slightly behind. Tegmina narrow, longer than the abdomen, with the mediasternal area extending nearly to the rounded tip; the base not expanded, with an intercalated nervure in the middle of the discoidal area. Wings perfectly developed, rather narrow. Hind femora moderately thickened, as long as the abdomen. Subgenital lamina of male long, pointed; valves of the ovipositor long, slender, and pointed.

130. **Mecostethus fasciatus**, *Brunn.*

Mecostethus fasciatus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 127.

Reddish brown, with a broad pale central stripe running along the head, pronotum, and tegmina. Fastigium of the vertex triangularly produced, concave above. Antennæ filiform, black, with the tip paler. Pronotum rugose, with a narrow continuous median carina, the last transverse sulcus placed rather behind the middle, behind which the lateral carinæ are visible in the female only. Tegmina extending for one-fourth of their length beyond the abdomen, with the accessory nervure distinct; brown, with a yellow line on the front margin, and a pale stripe on the hind margin, very distinctly marked; wings slightly clouded. Hind femora pale reddish, with the tip browner, or black (in the male); hind tibiæ black at the base with a pale ring, the rest dull blue, with 10 spines on the outer carina. Subgenital lamina of the male shortly and obtusely pointed.

Length 11–21 mm.; antennæ, 9–10 mm.; pronotum, 3·3–4 mm.; tegmina, 13–19 mm.; hind femur, 10–13 mm.

Burma: Metanja, Palon.

Types in the Genoa Museum.

Genus GYMNOBOTHRUS.

Gymnobothrus, Bolivar, Jorn. Sci. Lisb. (2) i, 1889, p. 100.

Type, *Gymnobothrus linea-alba*, Bol.

Range. Africa, India.

Fastigium of the vertex triangular, but narrowly rounded in front, excavated above, with the margins between the eyes more or less carinately produced; foveolæ triangular or subtrapezoidal, mostly filled up, very oblique or perpendicular, not visible from above; frontal carina convex between the antennæ, then sulcated, and continued to the clypeus. Antennæ filiform, or slightly depressed before the middle, about as long as the head and pronotum together. Pronotum tricarinate, with three transverse sulci, the deflexed lobes higher than long. Tegmina perfectly developed, the discoidal area with a distinct intercalated nervure, the ulnar nervures diverging at the base, with an accessory nervure between them. Wings hyaline or slightly infuscated at the tips. Metasternal lobes more or less converging behind the foveolæ, but in the male always contiguous.

131. **Gymnobothrus indicus**, *Bol.*

Gymnobothrus indicus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 596, pl. ix, fig. 31.

Testaceous, varied with brown. Foveolæ of the vertex subquadrate, filled up with black; frontal carina impress-punctate,

sulcate at the ocellus for a long space in the male, and a short space in the female. Antennæ filiform, slightly depressed. Pronotum pale above, the lateral carinæ straight before the hind sulcus, parallel, but considerably diverging behind; the deflexed lobes broadly brown internally, often with an oblique whitish ridge. Tegmina subhyaline, with a yellow scapular line, and brown discoidal spots; the mediastinal area expanded at the base, and continued behind the middle; scapular area rather broad, dilated in the male beyond the middle, with waved transverse hyaline nervures; wings hyaline, slightly clouded at the tip. Hind femora with four brown bands, often obsolete on the outer side, the lower carina of the outer area marked with black dots. Metasternal lobes converging and contiguous behind the foveolæ.

Length 11–17 mm.; pronotum, 2–3 mm.; tegmina, 10–14 mm.; hind femur, 7–10 mm.

MADRAS: Madura.

Types in the collections of Messrs. Pantel and Bolivar.

132. **Gymnobothrus (?) simplex**, *Walk.*

Stenobothrus simplex, Walker, Cat. Derm. Salt. B.M. v, 1871, Suppl. p. 82.

Ferruginous brown, paler beneath. Vertex obtusely rounded in front, face very oblique, the median line sulcated throughout, the space between narrow, and of uniform width; foveolæ very small, not visible from above. From the back of the eye runs a broad black band over the back of the head and the pleura, bordered above and below with slight pale lines; on the metapleura it becomes evanescent. Antennæ scarcely as long as the head and pronotum, rather thick filiform. Pronotum tricarinate, with a sulcus behind the middle, not cutting the middle carina; behind this, both the pronotum and pleura are strongly punctured. Tegmina longer than the abdomen, rufo-testaceous, with a short black stripe at the base of the costa, an indistinct pale line continuous with that above the black band of the pronotum, and a longitudinal row of obscure dusky spots. Hind femora apparently spotted with black at the base.

Length, to end of tegmina, 18 mm.

Type in the British Museum.

Genus **MADUREA**.

Madurea, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 596.

TYPE, *Madurea cephalotes*, Bol.

Range. India.

Fastigium of the vertex obtusely angulated, distinctly sloping when viewed from the side, in the male as long as broad, in the

female transverse; foveolæ subtrapezoidal, inferior, not visible from above; front convex, slightly oblique in the female. Antennæ filiform. Pronotum constricted in the middle, with the hind sulcus placed scarcely beyond the middle; the median carina slender, continuous, intersected by the hind sulcus; the lateral carinæ obliterated in the middle. Lobes of the mesosternum transverse, separated by a rather narrower space; lobes of the metasternum contiguous, or, in the female, separated by a short space behind the foveolæ. Tegmina extending to the middle of the abdomen. Hind femora thickened, with the outer area convex.

133. **Madurea cephalotes**, *Bol.*

Madurea cephalotes, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 597, pl. ix, fig. 32.

Pale yellow, varied with brown and ferruginous. Head large, tumid in front in the female, the tip of the front punctured, the median carina expanded towards the tip, punctured and subsulcated; vertex with a very slight median carina. Pronotum more subreflexed in the male than in the female; the back pale, or with a broad pale central fascia, the sides reddish, with the hind border obtusely and roundly angulate; the deflexed lobes brown in the middle, with a pale submedian callosity. Tegmina in the male scarcely extending beyond the middle of the femora; in the female shorter, lanceolate, with the radial area spotted with brown. Hind femora rather shining, with three narrow reddish-brown bands, more or less obliterated externally, and the knees reddish brown; hind tibiæ blue, with a pale ring at the base, and the condyle infuscated. Abdomen varied with brown, with a pale median longitudinal stripe; supra-anal lamina of the male triangular, with the median sulcus narrowed posteriorly, and subsinuated behind on each side near the tip; cerci short, conical; subgenital lamina obtusely produced; valves of the ovipositor sinuated before the tip, but not dentated.

Length 9–17 mm.; pronotum, 2 mm.; tegmina, 6·5 mm.; hind femur, 6·5–9 mm.

MADRAS: Madura.

Types in the collections of Messrs. Pantel and Bolivar.

Genus **OCHRILIDIA.**

Ochrilidia, Stål, Recens. Orth. i, 1873, pp. 92, 104; Brunner, Prodr. Eur. Orth. 1882, pp. 83, 91.

Brachycrotaphus, Krauss, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. lxxvi (i), 1877, p. 47.

TYPE, *Opomola tryxalicera*, Fisch.

Range. S. Europe, N. & W. Africa, W. Asia, India.

Head as long as the pronotum; fastigium of the vertex produced

considerably beyond the eyes and fully as long, slightly ascending, convex, tricarinate, the foveolæ narrow, inferior, the frontal carina sulcate to the base. Antennæ as long as the head and pronotum together, ensiform, flattened towards the base, and filiform towards the tip. Pronotum short, subcylindrical, the middle carina distinct, the lateral carinæ obsolete. Prosternum with a very short tubercle; mesosternal lobes contiguous in front, and diverging behind; metasternal lobes contiguous. Tegmina narrow, subhyaline, longer than the abdomen, and rounded at the tips, with the scapular area dilated in the male, and with no intercalated nervure; wings hyaline, shorter than the tegmina. Front legs very short, middle femora extending a little beyond the base of the hind coxæ, hind femora short, narrow; all the tibiæ shorter than the femora. Supra-anal lamina broad, narrower behind, trisulcate, with the hind border quadri-lobate; the cerci short, simple, incurved before the tips; the subgenital lamina short, cuneiform, impressed above as far as the obtuse tip.

134. **Ochrilidia longiceps**, *Bol.*

Ochrilidia longiceps, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 595.

Pale, more brown on the back, with a pale band running behind the eyes as far as the margin of the outer lobes of the pronotum. Antennæ rather longer than the head and pronotum together. Fastigium of the vertex longer than the eye, tectiform above, distinctly narrowed in front, and narrowly rounded at the tips: foveolæ very long. Pronotum with the carinæ obsolete, except the middle carina which is visible in the hinder area; the deflexed lobes longer than high. Mesosternum with the lobes contiguous behind, and slightly separated in front. Tegmina considerably longer than the abdomen, costal area much dilated, hyaline, crossed by 14 nervules, the anterior ulnar nervure suddenly approximating to the third radial nervure near the base. Hind femora shorter than the abdomen. Supra-anal lamina black on the sides; cerci sinuated above; subgenital lamina rather short and subsinuated at the tip.

Length 25 mm.; pronotum, 3·5 mm.; tegmina, 20 mm.; hind femur, 10·2 mm.

MADRAS: Madura.

Type in the collection of M. Pantel.

Genus DOCIOSTAURUS.

Dociostaurus, Fieber, Lotos, iii, June 1853, p. 118.
Stauronotus, Fischer, Orth. Eur., Nov. 1853, pp. 297, 351.

TYPE, *Gryllus cruciatus*, Charp. (= *Gryllus maroccanus*, Thunb.).

Range. S. Europe, Asia, N. & W. Africa.

Head large, slightly ascending; fastigium of the vertex triangular, separated on each side from the eye by a well-marked carina; foveolæ of the vertex rather superior, broad, rhomboidal, converging towards the tips. Antennæ filiform, as long as the head and pronotum together; face slightly oblique, flattened, and hardly sulcated. Pronotum strongly constricted before the middle, tricarinate, the lateral carinæ angulated inwards. The sulci scarcely indicated; the deflexed lobes much higher than long, with a short curved pale carina on the metapleura. Tegmina and wings perfectly developed; tegmina rather long and narrow, obtusely rounded at the extremity, and with the costal area widened in the male; wings rather shorter than the tegmina, hyaline. Hind femora as long as the abdomen, simple. Hind tibiæ spinose, with the two inner apical spurs subequal; hind tarsi very slender, with the claws and arolium small. Subgenital lamina horizontally produced in the male; valves of the ovipositor smooth, short.

Key to the Species.

[The manuscript here leaves doubt as to the author's intention respecting the following species of Walker's. This is probably due to the very unsatisfactory condition of the types. The following notes may help to distinguish the species:—

1 (2)	Tegmina shorter than abdomen, with 3 or 4 nearly black spots in discoidal area, separated by yellow spots of smaller size; wings slightly infuscate at apex.	*apicalis*, Walk., p. 117, and *turbatus*, Walk.*, p. 118.
2 (1)	Tegmina longer than abdomen, with 3 or 4 small light brown spots in discoidal area; wings entirely clear.	
3 (4)	Pronotum without distinct median stripe; tegmina with some vague small spots on radial area........................	*mundus*, Walk., p. 119, and *epachromoides*, Walk., p. 119.
4 (3)	Pronotum with distinct median stripe; tegmina with three large spots on radial area..........	*decisus*, Walk., p. 120.]

135. Dociostaurus apicalis, *Walk.*

Stenobothrus apicalis, Walker, Cat. Derm. Salt. B.M. v, 1871, Suppl. p. 80.

Brown, abdomen and under surface testaceous. Antennæ

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* Possibly sexes of same species.

testaceous, slightly thickened and brown towards the tips. Space on the depression of the fastigium pale, continuous with a pale median stripe running to the back of the head; face subcarinate, punctured, hardly sulcate. Pronotum short, obtusely angulated behind, the carinæ whitish, a yellow stripe running obliquely upwards from the end of the metapleura. with a blackish spot beyond its extremity. Tegmina subhyaline, the costal area brown at the base, then hyaline, and much expanded to its extremity at three-fourths of the length of the tegmen. Central longitudinal area with four spots, the two basal ones dark brown, the two outer ones reticulate; beyond them, nearer the costa, are two more spots, one brown and one light brown; the hind area of the tegmina is yellowish brown, traversed for half its length by a brown stripe tapering from the base. Wings hyaline, slightly clouded towards the tips, rather shorter than the tegmina. Hind femora testaceous, indistinctly banded with brown, knees brown, tibiæ testaceous, brown at the base, and on the upperside in the middle, with about 10 small blackish spines on each carina.

Fig. 90.—*Dociostaurus apicalis.*

Length 13 mm.; expanse of tegmina, 21 mm.

Bombay.

Type in the British Museum.

136. **Dociostaurus turbatus**, *Walk.*

Stenobothrus turbatus, Walker, Cat. Derm. Salt. B.M. v, 1871, Suppl. p. 81.

Lighter and darker brown and testaceous. Head brown, with a testaceous stripe running through the middle of the depression on the fastigium (there is a dark spot in the angle on each side) to the back of the head, and a broad testaceous line running from between the eyes and antennæ outwards and downwards, till it nearly meets another broad testaceous line running from the lower back corner of the eyes to the lower part of the cheeks; face with four slight carinæ; not sulcated, but flattened and punctured between them; antennæ testaceous, filiform, slightly brown at the extreme tip; foveolæ of the vertex rhomboidal. Tegmina with alternate yellowish and light reddish-brown longitudinal lines; central area yellowish, with a row of six brown oblong spots, longer than broad, extending from the base nearly to the extremity. Legs testaceous, hind femora very obliquely banded with brown above and within, and stippled with brown on the outer area; hind tibiæ with about 10 or 11 small black spines on each carina.

Length 16 mm.
BOMBAY.
Type in the British Museum.

137. Dociostaurus mundus, *Walk.*

Stenobothrus mundus, Walker, Cat. Derm. Salt. B.M. v, 1871, Suppl. p. 79.

Testaceous, face more rufous, not sulcated, with the carinæ indistinct. Fastigium of the vertex subtriangular, rounded at the extremity, the carinæ running backwards to within the eyes; foveolæ superior, oblong, punctured within. Pronotum tricarinate, the lateral carinæ angulated inwards halfway between the base and the suture, which is placed about the middle of the pronotum. Tegmina subhyaline, tinged with rufo-testaceous towards the base, costal area more brownish at base, subcostal space with a row of five narrow brown spots, continued by more or less distinctly marked paler brown spots and dots on the outer surface of the tegmina. Wings hyaline. Hind femora as long as the abdomen, indistinctly banded above with brown, knees marked with blackish; tibiæ whitish, with 11 small black spines on the outer row, and 9 on the inner.

BOMBAY.
Length 17 mm.; expanse of tegmina, 36 mm.
Type in the British Museum.
Probably a discoloured specimen of the next species.

138. Dociostaurus epacromoides, *Walk.*

Stenobothrus epacromoides, Walker, Cat. Derm. Salt. B.M. v, 1871, Suppl. p. 81.

Apparently a better-coloured example of *D. mundus.* Testaceous; face with a black spot under each eye, and a curved carina running from between each eye and the antennæ to the extremity of the clypeus; it is marked with a black spot at its extremity, and two black dots above. A black band runs behind the eye over the head and pronotum, crossing the whitish lateral carinæ, the hinder half of which it borders within, but not to the extremity; on each side of the median carina, however, are two rudimentary blackish carinæ, at the extremity of the pronotum. On the sides of the head a broad dusky band runs backwards from the black spot below the eye; on the pleura it becomes more distinct, and in the middle of the pleura is a white callous spot surrounded with black. Tegmina nearly as in *D. mundus,* but the brownish spots are mostly larger and more crowded. Wings hyaline.

Length 19 mm.; expanse of tegmina, 36 mm.
BOMBAY.
Type in the British Museum.

139. **Dociostaurus decisus**, *Walk.*

Stenobothrus decisus, Walker, Cat. Derm. Salt. B.M. v. 1871, Suppl. p. 80.

Brown; fastigium of the vertex subtriangular, the foveolæ oval, sides of face below the eyes and behind the lateral carinæ paler; a pale stripe runs from the fastigium over the head and pronotum; the lateral carinæ narrowly pale; three transverse sutures indented on the sides of the median carina, the hindmost at the middle of the pronotum. Pleura brownish, with an oblique pale carina behind. Tegmina rufo-testaceous, with a row of large brown spots along the central area, and with smaller brown dots between these and the costa; wings hyaline, with the nervures of the costal area reddish. Abdomen carinated above. Hind femora testaceous, brown on the outer side nearly to the extremity; tibiæ red, yellowish towards the base, with about 12 small black spines on each carina.

Fig. 91. *Dociostaurus decisus.*

Length 23 mm.; expanse of tegmina, 38 mm.

Bombay.

Types in the British Museum.

Genus STENOBOTHRUS.

Stenobothrus, Fischer, Orth. Eur. 1853, pp. 296, 313.

Type, *Gryllus lineatus*, Panz.

Range. Europe, N. & W. Asia, N. Africa, Madagascar, Australia, Chile.

Vertex triangular, obtuse; foveolæ superior, long, narrow; front only slightly sloping, prominent, more or less sulcated; antennæ filiform. Pronotum tricarinate, constricted in the middle, with one transverse sulcus. Tegmina and wings generally perfectly developed, hyaline or subhyaline. Hind femora unarmed, hind tibiæ spinose. Pectus broad, mesosternal lobes widely separated, metasternal lobes produced behind the foveolæ, and distant. Tympanum on the first abdominal segment covered; anal segment longitudinally sulcate; supra-anal lamina in male obtusely triangular; subgenital lamina in male recurved, obtuse or pointed at the tip. Valves of ovipositor short, exserted, sometimes with a lateral tooth at the base.

140. **Stenobothrus (?) luteipes,** *Walk.*

Stenobothrus luteipes, Walker, Cat. Derm. Salt. B.M. v. 1871, Suppl. p. 82.

Testaceous, mottled and stippled with dusky markings; vertex rounded in front, and backwards at the sides as far as a broad pale stripe extending across the head, pronotum and closed tegmina; the outer angles of the vertex form small black depressions; foveolæ oval, visible from above; face slightly oblique, sulcated in the male, but scarcely so in the female, and with curved lateral carinæ running from between the eyes and the antennæ. Head with three broad blackish stripes behind the eyes, the first running across the head, pronotum, and the whole central longitudinal area of the tegmina, the second straight, hardly reaching the extremity of the pronotum, and the third very broad, covering the hinder part of the head and the pleura except the metapleura. Tegmina with the centre dusky, and the costa and inner margin broadly pale; wings subhyaline. Hind femora testaceous, with three blackish bands above, and the knees black; outer area brownish, or at least with some blackish dots along the upper border; tibiæ red, yellowish towards the base, with 12 small black spines on the outer, and 10 on the inner border. Tegmina and hind femora about as long as the abdomen.

Length 20–22 mm.

BOMBAY; KASHMIR: Baltistan.

Type in the British Museum.

Genus **ÆOLOPUS.**

Aiolopus, Fieber, Lotos, iii, May 1853, p. 100; id., Syn. Eur. Orth. 1854, p. 11.
Epacromia, Fischer, Orth. Eur., Nov. 1853, pp. 296, 360.
Æolopus, Kirby, Syn. Cat. Orth. iii, 1910, p. 120.

TYPE, *Gryllus thalassinus*, F.

Range. Europe, Africa, Asia, Malay Archipelago, Australia.

Vertex triangular, extending as far in front of the eyes as the length of the head behind them, concave above, the foveolæ longer than broad, punctured, not contiguous; front continuous, but rarely sulcated, lateral carinæ running from below the antennæ to the clypeus, and a short carina running obliquely forward below the eye; the cheeks more strongly punctured than the rest of the face. Antennæ filiform, rather longer than the head and pronotum. Pronotum constricted in front, tricarinate, the lateral carinæ incurved, slightly marked, generally with a pale border; three transverse sulci, the hindermost only cutting the median carina and placed a little before the middle of the pronotum. Tegmina long, obtusely rounded at the extremity, with the mediastinal nervure extending to the tip, and the mediastinal area expanded at the base, and traversed by an accessory nervure; wings ample, rather shorter than the tegmina, subhyaline. Hind

femora slender, as long as the abdomen, red or yellow, with dark bands or spots; tibiæ red or blue, with yellow and brown bands, spinose; hind tibiæ with small arolia. First abdominal segment with an open tympanum; supra-anal lamina in the male divided from the anal segment by a transverse sulcus; anal segment longitudinally sulcated, and the lamina rounded; valves of ovipositor rather long, free, unarmed.

Key to the Species.

Apical half of hind tibiæ red	*tamulus*, F.
Apical half of hind tibiæ blue	*affinis*, Bol.

141. **Æolopus tamulus**, *F.*

Gryllus tamulus, Fabricius, Ent. Syst. Suppl. 1798, p. 195.
Gryllus dorsalis, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 229.
Gomphocerus tricoloripes, Burmeister, Handb. Ent. ii. 1838, p. 649.
Epacromia simulatrix, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 773.

Green, brown, or reddish, generally with two parallel brown stripes on the vertex, running within each eye to the back of the head; and a broad brown band running from the back of each eye to the end of the pronotum, and extending over more or less of the pleura, which is then marked with several white spots; the upper side of the dark band is generally bordered by a slender white line in front, which afterwards intersects it, turning obliquely outwards. Tegmina rather long, varied with brown and subhyaline; mediastinal area with two alternate long brown and whitish spaces, the outermost of each broader; below the first brown space runs a bright green stripe to the first white stripe; and below the green stripe are often some small white spots on a light brown ground. The outer part of the tegmina is generally subhyaline, more or less spotted with brown; wings greenish hyaline, more or less dusky towards the hind margin. Hind femora slender, as long as or longer than the abdomen; green, yellow, or reddish, transversely banded with brown; hind tibiæ yellow towards the base, with a blackish spot before and behind, blue towards the middle, and red towards the extremity.

Fig. 92.—*Æolopus tamulus.*

Length 18 mm.

MADRAS.

Type of *E. simulatrix* in the British Museum.

142. **Æolopus affinis**, *Bol.*

Epacromia affinis, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 600.

Rufous-brown, sometimes with a rather irregular pale median

band on the head and pronotum. Scutellum of the vertex subtriangular, obtusely rounded off in front; costal ridge flattened, punctured. Pronotum with a median carina, considerably expanded beyond the middle, the sutures indistinct, the hind border obtusely angulated. Abdomen yellowish, with a more or less suffused row of dark dorsal spots. Hind femora rather short and broad, yellowish, banded with black; hind tibiæ reddish towards the base, with the apical half blue. Tegmina extending one-third beyond the hind femora, subhyaline, varied with darker and lighter brown, and with yellowish and whitish spots along the costa; wings greenish hyaline.

Length 19–24 mm.; pronotum, 3·2–4 mm.; tegmina, 18–22 mm.; hind femur, 10·5–12 mm.

MADRAS: Madura; BOMBAY: Bandra.

Types in the collections of Messrs. Pantel and Bolivar.

Genus **AULACOBOTHRUS**.

Aulacobothrus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 597.

TYPE, *Aulacobothrus strictus*, Bol.

Range. India.

Vertex triangular, pointed in the male, and concave above; foveolæ superior, well-marked, oblongo-rhomboidal; antennæ filiform; costal ridge convex, smooth or strongly sulcated. Pronotum flattened, angulated behind; middle carina continuous, only intersected by the hind sulcus, with the lateral carinæ distinctly beyond the margins of the disk, intersected by the three sulci, and diverging behind; deflexed lobes higher than long, with the hinder angle straight. Tegmina completely developed, or abbreviated; mediastinal area with an adventitious nervure, which is complete in the male, and sinuated, extending to the front margin of the tegmina; nervures of the scapular area oblique, sinuated, regularly reticulated, and more dilated in the male than in the female; intercalated nervure more or less distinct; ulnar nervures diverging. Wings fully developed or rudimentary. Hind femora above distinctly spotted, with the outer area slightly convex; hind tibiæ red; the two inner spurs of the tibiæ distinctly marginal, the apical spur straight, only curved at the tip. Metasternal lobes produced behind the foveolæ, and contiguous in both sexes, or rarely, very slightly separated in the female. First abdominal segment with an open tympanum on the side; supra-anal lamina in the male acutely triangular; cerci short, conical; valves of the ovipositor short, projecting.

[The species of this genus are only known from descriptions from which it has been found to be impossible to draw up a key.]

143. **Aulacobothrus strictus**, *Bol.*

Aulacobothrus strictus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 598.

Size rather large; body somewhat compressed. Colour varied with pale and brown markings. Foveolæ of the vertex elongated; frontal ridge sulcated, with impressed punctures, the margins thickened; antennæ brown. Pronotum nearly rectangular behind, with the hinder area rugose, and the principal sulcus placed in the middle; the lateral carinæ nearly straight, diverging behind, often intersected by a black band. Tegmina perfectly developed, extending beyond the hind femora, infuscated towards the tip; mediastinal, radial, and ulnar areas with a spurious nervure. Space between the mesosternal lobes narrower than the lobes; metasternal lobes contiguous in both sexes. Hind femora with the knees brown on both sides; tibiæ red, with a pale ring at the base.

Length 15–21 mm.; pronotum, 3–4 mm.; tegmina, 12–19 mm.; hind femur, 9–12·5 mm.

MADRAS: Kodaikanal.

Types in the collections of Messrs. Pantel and Bolivar.

144. **Aulacobothrus socius**, *Bol.*

Aulacobothrus socius, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 599.

Moderately compressed, varied with pale and greyish-brown markings. Foveolæ of the vertex rhomboidal; frontal ridge convex, impress-punctate; antennæ concolorous. Pronotum obtusely angulated behind, or rectangular, the hinder area hardly rugose, the typical sulcus placed in the middle, the lateral carinæ waved, approximating to the median carinæ in the middle, and widely divergent behind, a slender ridge externally separating the dorsum from the deflexed lobes. Tegmina perfectly developed, extending rather beyond the hind femora; the discoidal area with a row of black subquadrate spots, the mediastinal, radial, and ulnar areas with a more or less distinct spurious nervure. Space between the mesosternal lobes somewhat narrower than the lobes; metasternal lobes contiguous behind the foveolæ in both sexes. Hind femora with three oblique brown bands, and the knees brown; tibiæ red, with a pale ring at the base.

Length 13–20 mm.; pronotum, 2·8–3·8 mm.; tegmina, 11–15 mm.; hind femur, 8–11 mm.

MADRAS: Kodaikanal, Madura.

Type in the collection of St. Joseph's College, Trichinopoly.

145. **Aulacobothrus infernus**, *Bol.*

Aulacobothrus infernus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 599.

Body moderately compressed; pale grey varied with brown,

sometimes with a continuous pale stripe above. Foveolæ of the vertex oblong-rhomboidal, not elongated; frontal ridge convex, impress-punctate; antennæ concolorous. Pronotum obtusely angulated behind, with the hinder area punctate, and the principal sulcus placed distinctly behind the middle, the lateral carinæ angulately inflexed in the middle. Tegmina imperfectly developed (at least in the female), only extending as far as the middle of the hind femora; mediastinal area with a distinct spurious nervure. Mesosternal lobes separated by a rather narrower space than their width; metasternal lobes closely approximating behind the foveolæ. Hind femora indistinctly banded with brown; hind tibiæ red, with a slightly paler ring at the base.

Length 17 mm.; pronotum, 3·8 mm.; tegmina, 7·5 mm.; hind femur, 10·5 mm.

MADRAS: Kodaikanal.

Type in the collection of St. Joseph's College, Trichinopoly.

146. **Aulacobothrus tæniatus**, *Bol.*

Aulacobothrus tæniatus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 600.

Body moderately compressed; pale reddish. Antennæ rather long, extending as far as the hind coxæ in the male. Foveolæ of the vertex rhomboidal, broader in front; frontal ridge impress-punctate, rather broad at the base, and impressed as far as the eyes; head often with a broad brown band behind the eyes, containing a pale line. Pronotum obtusely angulated behind, the disk rather smooth, the margins intersected by a brown band, the lateral carinæ nearly parallel in front, but slightly flexuous in the middle, and often rather indistinct in the male; on the hinder area they are wide apart, and the callus white; upper half of the deflexed lobes brown. Tegmina extending nearly to the tip of the hind femora, the anal area paler, and the mediastinal area occupying the basal third in the male; the scapular area in the male expanded in the middle, and marked in the female with a narrow pale line; the third radial nervure in the female forked in the middle of the tegmina, and the discoidal area reticulated, the ulnar veins diverging behind. Metasternal lobes contiguous in the male, and almost so in the female. Hind femora with the outer area infuscated to the upper carina, and indistinctly trifasciate with brown, and the knees brown on both sides; hind tibiæ reddish, with grey pubescence.

Length 15–20 mm.; pronotum, 2·8–4 mm.; tegmina, 11·5–15 mm.; hind femur, 9–11·5 mm.

S. INDIA.

Type in the collection of St. Joseph's College, Trichinopoly.

147. **Aulacobothrus physopoda**, *Nav.*

Scyllina physopoda, Navás, Bol. Sci. Aragon, iii, 1904, p. 133.

♂. Ferruginous brown. Head shorter than the pronotum, with

a longitudinal line on the head; the fastigium of the vertex moderately sloping, the front very oblique, and the costal ridge sulcated, the carinæ distinctly diverging from the base to the tip; eyes large, much larger than the lower part of the cheeks, oval, moderately approximating on the vertex; behind the eyes is a brown band continuous with a lateral band on the pronotum. Pronotum with the metazona shorter than the prozona, the front margin obtusely angulated, a middle carina continuous with the line on the vertex, the lateral lobes longer than broad, with the front and hind margins straight and parallel, the outer margin oblique, and convex beyond the middle. Tegmina longer than the abdomen, narrow, rounded at the tip, with the front and inner margins nearly parallel, very broadly sinuous, the spurious nervures indistinct, with no intercalated nervure; but in the middle of the discoidal area, at two-thirds from the base, is an adventitious intercalated nervure formed by a sinuous confluence of nervures. Wings hyaline, with brownish black nervures. Four front femora thickened, curved above, hind femora compressed, longer than the abdomen, but shorter than the tegmina, and with small genicular lobes; hind tibiæ with a terminal spine, the inner spurs unequal, the inner one almost twice as long as the outer.

Length 13 mm.; pronotum, 3 mm.; antennæ, 4 mm.; tegmina, 10·4 mm.; hind femur, 8 mm.

SIKKIM: Kurseong.

Type in the collection of Father Navás.

148. **Aulacobothrus rubripes,** *Nav.*

Scyllina rubripes, Navás, Bol. Soc. Aragon, iv, 1905, p. 53.

♀. Ochreous brown, with the hind tibiæ bright red. Head ochraceous, finely dotted with brown; fastigium of the vertex moderately sloping, the temples distinctly margined above; frontal ridge sulcated in the middle; lateral carinæ sinuated; eyes pyriform, ocelli brownish black. Antennæ filiform, yellowish at the base, and blackish at the tips. Palpi pale, the first and second joints spotted with brown. Pronotum with the prozona shorter than the metazona, carinated in the middle, the carina only intersected by the typical sulcus; the front margin straight, the hind margin produced into an acute angle; the lateral lobes transverse, with the front and hind margins parallel, nearly straight, oblique externally, sinuated, with the disk thickly infuscated in the metazona on the hind margin; meso- and meta-sternal lobes not contiguous. Abdomen pale beneath, unspotted. Tegmina and wings longer than the abdomen, the former brown, with small distinct subhyaline ochreous spots, and a large irregular one, and white transverse nervures beyond the middle; before the middle closely reticulated; an intercalated nervure at the middle of the discoidal area, not extending to the base. Wings hyaline, sulphureous from the base as far as one-fourth in front and as far as the anal margin behind; the first three lobes infuscated at the tip. Four

front legs with numerous brown rings, the hind legs blotched with brown; hind femora longer than the abdomen, with the lower sulcus wholly bright red; hind tibiæ shorter than the femora, bright red, with the base narrowly brown, and with two or three indistinct spots on the side near the base; spines brownish, the inner spurs unequal, the outer nearly twice as long as the inner; 9 short spines on the outer, and 10 on the inner margin, red, tipped with black; tarsi pale brown.

Length 23 mm.; pronotum, 5 mm.; tegmina, 25 mm.; hind femur, 14 mm.

SIKKIM: Kurseong.

Type in the collection of Father Navás.

Genus STAURODERUS.

Stauroderus, Bolivar, Ann. Sci. Nat. Porto, iv, 1897, p. 224, v, 1898, p. 4.

TYPE, *Stenobothrus morii*, Brunn. (*nec* Fab.).

Range. Europe, Asia, N. & W. Africa.

Vertex subtriangular, obtuse; foveolæ superior, narrow, well-marked; antennæ filiform; front hardly oblique, frontal ridge carinated. Pronotum with the lateral carinæ sharply angulated inwards before the middle; tegmina longer than the abdomen, the mediastinal area slightly expanded on the costa near the base, and not extending beyond the middle of the tegmina; wings hyaline.

149. Stauroderus bicolor, *Charp.*

Gryllus bicolor, Charpentier, Hor. Soc. Ent. Ross. 1825, p. 161.

Reddish-brown, greenish, or black, with a slight median carina on the head and pronotum, which are lined with black, or are more largely black, the white angulated lateral carinæ of the pronotum being usually very distinctly marked. Antennæ half as long again as the head and pronotum together, and of equal length in both sexes. Tegmina subhyaline, greenish along the costa, sometimes more or less varied with pale and dusky spots; wings hyaline, sometimes clouded at the tips. Legs generally yellowish or reddish, femora often with dusky streaks or markings; tibiæ with about 12 small black-tipped spines on each side. Abdomen brown, paler beneath, and sometimes tipped with red.

Fig. 93.
Stauroderus bicolor.

Length 15–24 mm.; pronotum, 2·5–4·8 mm.; tegmina, 12–21 mm.

EUROPE; N. AFRICA; INDIA; BURMA; CHINA; JAPAN.

Genus CHORTHIPPUS.

Chorthippus, Fieber, Kelch, Orthopt. Oberschles. 1852, p. 1.

Type, *Gryllus elegans*, Charp. (= *Acrydium albomarginatum*, de Geer).

Range. Europe, Asia, North America.

General characters of *Stauroderus*, but the carinæ of the pronotum are subparallel, the lateral carinæ only diverging slightly beyond the middle.

150. Chorthippus dorsatus, *Zett.*

Gryllus dorsatus, Zetterstedt, Orth. Suec. 1821, p. 82.

Colour variable, green, testaceous, or brown. Antennæ subdepressed, longer than the head and pronotum together. Pronotum with the transverse sulcus placed about the middle, the head not carinated above, the pronotum strongly tricarinate, the median carina slightly raised, the lateral carinæ slightly incurved before the middle, and then diverging. Tegmina longer than the abdomen in the male, usually shorter in the female, subhyaline, sometimes with a longitudinal yellow scapular line; wings hyaline, with brown nervures. Pectus and front legs pilose. Legs not spotted; hind tibiæ with about 12 small spines, decreasing in size towards the base. Subgenital lamina in the male incurved, pubescent; valves of the ovipositor unarmed.

Length 14–26 mm.; pronotum, 3–5 mm.; tegmina, 10–21 mm.

Europe; N. & W. Asia; Burma.

Subfamily IV. ŒDIPODINÆ.

Key to the Genera.

[1 (18) Carina of pronotum complete, or cut by one groove.
2 (14) Thorax rather short.
3 (17) Basal half of tegmina opaque.
4 (13) Transverse veins in apical part of tegmina erect, the cells square or oblong.
5 (10) Wings without well-marked fascia.
6 (9) Tegmina narrow, with square or elongate cells. [p. 139.
7 (8) Internal calcaria of posterior tibiæ not greatly unequal, normal .... { Dittopternis, Sauss., Lerina, Bol.,* p. 138. }

* This genus is unknown to me. The author says that it differs from *Dittopternis* and *Heteropternis* in having the calcaria normal.—C. O. W.

8 (7) Internal calcaria of posterior tibiæ greatly unequal, the lower one much longer than the other, abruptly hooked at apex, very acute .... HETEROPTERNIS, Stål, [p. 141.

9 (6) Tegmina relatively broad, with square or oblong cells; body robust .... CHLŒBORA, Sauss, [p. 130.

10 (5) Wings with well-marked fascia.

11 (12) Pronotum without colour marks .. QUIROGUESIA, Bol., [p. 132.

12 (11) Pronotum with pale marks arranged so as to form an × .... ŒDALEUS, Fieb., p. 142.

13 (4) Transverse veins of apical part of tegmina oblique, arranged zig-zag. PTERNOSCIRTA, Sauss., [p. 134.

14 (2) Thorax long.

15 (16) Pronotum with strong crest or acutely tectiform, without rugæ; wings without black at apex .... GASTRIMARGUS, Sauss., [p. 144.

16 (15) Pronotum with well-marked median carina, and with numerous longitudinal rugæ .... MORPHACRIS, Walk, [p. 137.

17 (3) Basal and apical portions of tegmina both subhyaline................ LOCUSTA, L., p. 145.

18 (1) Dorsum of pronotum or its carina cut by two grooves.

19 (26) Pronotum without very distinct crest.

20 (21) Tegmina of male rather short and dilated, the apical third strongly curved backwards; antennæ acuminate at apex .... MECISTOPTERYX, Sauss., [p. 147.

21 (20) Tegmina normal; antennæ filiform.

22 (23) Body very robust; tegmina rather broad; radial veins of wings somewhat thickened, especially in the male, and then attenuated at apex. BRYODEMA, Fieb., p. 150.

23 (22) Body normal; tegmina long and narrow.

24 (25) Pronotum short, broadly rounded behind, or very slightly angular. . ACROTYLUS, Fieb., [p. 152.

25 (24) Pronotum distinctly angular behind; basal third of tegmina generally opaque .... SPHINGONOTUS, Fieb., [p. 153.

26 (19) Pronotum with well-marked crest, which, when viewed sideways, is strongly bilobed in front .... TRILOPHIDIA, Stål, [p. 148.

Fig. 94.—Side view of head of *Locusta danica*.

Genus CHLŒBORA, *Sauss.*

Chlœbora, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 54, 132; xxx (1), 1888, pp. 18, 19, 33.

TYPE, *Chlœbora grossa*, Sauss.

Range. India, Madagascar.

Body stout. Antennæ filiform, moderately thick, as long as the head and pronotum together in the female, and rather longer in the male. Vertex sloping into the clypeus, with scarcely an indication of a division; face quadricarinate, the central pair commencing on the inner side of the upper surface of the eyes, curving inwards within the antennæ, and then running downwards, but not quite extending to the end of the clypeus; the outer carinæ running from the eyes opposite the antennæ, and curving forwards and then backwards to the outer lower corner of the clypeus. Pronotum with a strongly-raised median carina, not divided by the slightly-indicated sulci, with the hinder extremity subtriangular and obtusely truncated at the end; lateral lobes higher than long, with the front and hind borders nearly parallel and the lower margin convex. Tegmina long, nearly parallel-sided, slightly expanded on the costa near the base, opaque and very thickly reticulated to beyond the middle, the outer area subhyaline, more or less closely reticulated. Wings ample, rather shorter than the tegmina, opaque at the base and hyaline on the margins. Hind femora thick, moderately long, very slightly serrulated on the upper carinæ; hind tibiæ spinose, pubescent. Mesosternal lobes separated by a wide oval space between the narrow curved foveolæ at the extremity of the mesosternum.

Key to the Species.

1 (4) Wings yellow at base.
2 (3) Crest of pronotum arched, tectiform in front.......................... *grossa,* Sauss., p. 130.
3 (2) Crest of pronotum nearly straight, more lamellated .... *bramina*, Sauss., p. 131.
4 (1) Wings red at base .... *crassa,* Walk., p. 131.

151. Chlœbora grossa, *Sauss.*

Chlœbora grossa, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 132; xxx (1), 1888, p. 33; Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 604.

Yellowish grey; head large, rather smooth, especially at the sides, which are ashy; face vertical, slightly arched; vertex broad between the eyes, carinulated at the base of its scutellum, which is smooth, broad, rather short, and broadly truncated in front; facial ridge punctate, rugulose, subparallel-sided, and

slightly narrowed by the vertex; tempora trigonal and lanceolate. Pronotum above indistinctly tuberculate in the front and middle of the central area, obtusely angulated anteriorly, behind bluntly rectangular; median crest continuous, subarcuate (seen laterally), tectiform in the front area, very slightly intersected by the principal sulcus; lateral lobes between the sulci smooth, sparingly punctured, but elsewhere thickly; the lower margin arched, the front margin oblique or slightly sinuated. Tegmina extending as far as the middle tibiæ, coriaceous and mottled with black towards the base, with the apical third hyaline and reticulated; ulnar area much broader than the median area, with an incomplete arched intercalated nervure. Wings yellow (?) at the base, hyaline beyond, with a narrow brown marginal border. Hind legs long, hind femora obsoletely banded with brown, the carinæ dotted with black, the lower margin arched, the upper very finely serrulated and the basal half dilated; hind tibiæ red, with a pale ring at the base; arolia small, membranous; hind tibiæ with 10 spines in the outer row—5 large and 5 rudimentary.

Length 42 mm.; tegmina, 38 mm.; hind femur, 20·5–24 mm.

N. India: Himalayas; Madras: Trichinopoly.

152. **Chlœbora bramina**, *Sauss.*

Chlœbora bramina, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 132; xxx (1), 1888, p. 33.

Thick, rufo-testaceous, dotted with black. Head with the front rather angulated, facial ridge sulcated at the ocellus and punctate at the vertex; scutellum of the vertex truncated in front and very shortly carinated behind; tempora trigonal. Pronotum punctate and slightly granulated, the crest compressed, nearly straight, rectangularly produced behind. Tegmina brown, with two narrow pale fasciæ, the basal half coriaceous beyond the middle, with irregular polygonal reticulations, the apical half spotted or tessellated with grey. Wings sulphur-yellow, with a rather broad transverse brown band, extending to the crenate hind margin; tip brown. Hind tibiæ red, with a pale ring at the base.

Length 23 mm.; tegmina, 25 mm.

India.

Type in the collection of Brunner von Wattenwyl.

153. **Chlœbora crassa**, *Walk.*

Œdipoda crassa, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 741.
Chlœbora crassa, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 33.

Brown, very stout, finely pubescent, sides of head and pronotum more or less varied with whitish. Head large, rounded, scutellum

of the vertex obsolete, very shortly carinulated at the base, and slightly arched at the tip, longer than broad in the female, and broader than long in the male; carinæ bordering the costal ridge broadest above, converging below the ocellus, and then subparallel, but not extending to the end of the clypeus; outer carinæ curved, complete; vertex with two indistinct brown curved lines; eyes large, oval, but not very prominent. Pronotum scabrous, with black markings, the carina very slightly arched, the hind border produced and obtusely rounded. Abdomen dark red, with a median carina. Tegmina opaque and nearly covered with brown blotches (with some paler spaces in the male) on the basal half; terminal half subhyaline, quadrately reticulated with rather thick brown nervures. Wings red in the basal half and hyaline beyond; in the male the red is bordered by traces of an indistinct brown band. Hind femora broad, grey, with small black spots on the outside, and black, with two yellow bands, towards the tip, on the inside; yellow above, indistincty banded with black; hind tibiæ red, with 10 black-tipped spines on the outer carina.

Fig. 95.—*Chlœbora crassa.*

Length 25–40 mm.; pronotum, 7·5–9 mm.; tegmina, 25–33 mm.: hind femur, 15–21·5 mm.

N. Bengal.

Types in the collection of the British Museum.

Genus **QUIROGUESIA.**

Quiroguesia, Bolivar, An. Soc. Españ. xv, 1886, p. 515; Saussure, Mém. Soc. Genève, xxx (1), 1888, pp. 18, 84.

Type, *Acridium miniatum,* Brullé.

Range. Mediterranean Region to India.

Fastigium of the vertex ovate, elongated, more than twice as long as broad, truncated in front; tempora indistinct, trigonal, lateral, separated from the vertex; frontal ridge between the

antennæ only half as broad as between the eyes above, arched, punctured on the vertex. Pronotum with a raised continuous carina, slightly intersected by the principal sulcus about the middle, expanded behind the sulcus, with the hinder extremity obtusely angulated and the tip rounded. Tegmina long, narrow, slightly expanded on the costa near the base, the hind margin slightly oblique and rounded off into the inner margin; coriaceous to the middle, then subhyaline, regularly reticulated, with scattered dusky markings, the division between the two halves being almost perpendicular; wings coloured, with the outer third hyaline, tipped with dusky. Hind femora not serrated.

154. **Quiroguesia blanchardiana**, *Sauss.*

Quiroguesia brullei, var. *blanchardiana*, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 35; Bianchi, Pram. Loz. Ross. Imp. 1902, p. 252.

Head bluish grey, with obscure reddish markings, of which the most constant are two stripes on the vertex. Pronotum brown, generally with reddish markings at the base and whitish blotches on the pleura; median carina nearly straight, very slightly arched and not much raised. Abdomen black above, carinated, more or less pale towards the tip. Tegmina with the basal half more or less varied with lighter and darker brown and grey, apical half hyaline, with patches of the nervures more or less broadly black and the cells slightly infuscated. Wings greenish yellow or red in the basal half, bordered outside by a nearly straight black band, which then curves inwards round the hind margin to the anal angle; beyond this is a broad hyaline band, the tip of the wings being black, except that the cells of the terminal row are hyaline. Hind femora black, with pale bands, sometimes almost entirely pale on the outer side; knees black; hind tibiæ reddish or yellowish, the extreme base black, often followed by a pale band; with about 10 small regular black-tipped spines on each side.

Fig. 96.—*Quiroguesia blanchardiana.*

Length 23–43 mm.; expanse of wings, 48–78 mm.

SOMALILAND; ARABIA; PALESTINE; N.W INDIA; BOMBAY.

Types in the Paris and British Museums.

Appears to be distinct from *Q. notabilis*, Walk. (= *brullei*, Sauss.) from the Canaries, Spain and Algeria.

The only specimens of *Q. blanchardiana* at present in the British Museum from India and East Africa belong to the red form. Those from Aden are of both colours.

Genus PTERNOSCIRTA.

Pternoscirta, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 52 127; xxx (1), 1888, p. 18.
Prionidia, Stål (*nec* Leach), Recens. Orth. i, 1873, pp. 116, 127.

TYPE, *Œdipoda saturata*, Walk.

Range. The Oriental Region.

Head short, somewhat rugose, the carinæ bounding the frontal ridge not very prominent, strongly approximating between the antennæ. Tegmina brown, varied with paler markings on the basal half, then with a large subhyaline patch, and more or less varied with brown and subhyaline beyond, the cells being arranged in oblique quadrilaterals, angulated towards each other at the longitudinal nervures; wings often coloured at the base, with no central black band; hyaline beyond the middle, with the tip dusky. Legs and under surface pilose.

Key to the Species.

1 (2) Wings red at base .... *cinctifemur*, Walk., [p. 134.
2 (1) Wings yellow at base.
3 (4) Length of body 27 mm.; tegmina with the whole of the apical half spotted with brown .... *caliginosa*, De Haan, [p. 135.
4 (3) Length 21 mm.; tegmina with apical half with only a row of brown spots near front margin .... *bimaculatus*, Thunb., [p. 136.

155. Pternoscirta cinctifemur, *Walk.*

Acridium cinctifemur, Walker, Ann. Mag. Nat. Hist. (3) iv, 1859, p. 223.
Œdipoda saturata, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 740.
Pternoscirta saturata, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 36.
Pternoscirta humbertiana, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 127.

Head and pronotum granulose, brown, mottled with pale markings; abdomen shining black; pronotum and abdomen with

a continuous median carina, pronotum slightly produced and obtusely rounded behind. Tegmina narrow, brown, slightly expanded on the costa near the base and rounded at the extremity; two large pale spaces, one just beyond the costal expansion, and the other, paler, just beyond the middle; the basal area is very closely reticulated and speckled with grey; the outer area is brown, varied with subhyaline spaces, often forming short transverse lines and obliquely reticulated. Wings rose-colour on the basal half, then clouded hyaline, darkest towârds the margins, which become brown towards the apex, sometimes forming two irregular spots. Hind femora buff or bluish grey outside, with black spots; banded with black above and black on the inner side, with two pale bands before the black knees; hind tibiæ black, banded with yellow at the base and blue beyond, with 9 or 10 black spines; hind tarsi yellow.

Fig. 97.
Pternoscirta cinctifemur.

Length 22-30 mm.; expanse of tegmina, 46–58 mm.

Ceylon.

Types in the British Museum.

[The illustration is taken from the type of *P. saturata*, Walk.]

156. Pternoscirta caliginosa, *De Haan.*

Acridium (*Œdipoda*) *caliginosum*, De Haan, Temminck, Verhandel., Orth. 1842, p. 161, pl. xxi, fig. 11.
Pternoscirta caliginosa, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 127, 128.

Rugose and granulated, reddish, irregularly marked with blackish. Head with the scutellum of the vertex strongly contracted above the antennæ, the carinæ then gradually diverging; the lateral curved carinæ running from between the eyes and antennæ to the end of the clypeus well marked; a pale spot within each eye, and another, bordered above and below with black, on the pleura. Pronotum with the median carina strongly marked, but nearly straight, cut by the principal sulcus distinctly before the middle; hind border obtusely angulated. Abdomen yellowish, carinated above. Tegmina long, narrow, brown, mottled with yellowish grey, often with two pale spaces as in the last species. Wings much longer than broad, hyaline, yellow towards

the base and brown towards the tips. Hind femora yellowish, banded with brown; hind tibiæ black, banded with yellow at the base and blue beyond; about 8 spines on each side, tipped with black.

Length 27–29 mm.; expanse of tegmina, 50–60 mm.

INDIA; MALACCA.

Type in the Leyden Museum.

157. **Pternoscirta bimaculata**, *Thunb.*

Gryllus bimaculatus, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 239.
Epacromia turbata, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 776.
Acrotylus humbertianus, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 187, 189.

Fig. 98.
Pternoscirta bimaculata.
a. Apical half of tegmen.

Greyish-tawny, whitish beneath, pubescent. Scutellum of the vertex with black carinæ and terminating in a transverse carina; frontal ridge sulcated, punctured, cheeks granulated. Pronotum short, with a blackish band behind the eye, extending over a great part of the pleura, but divided by a large triangular pale spot in front and a large round one in the middle; deflexed lobes much higher than long. Abdomen mostly black above. Tegmina brown, with two transverse whitish bands or spots, and the discoidal area hyaline beyond the middle. Wings subhyaline, with the base yellow, the costa beyond the middle brown, and the marginal half clouded with brown, except below the dark costal line. Front legs yellowish, ringed with black; hind femora banded with black and yellowish; hind tibiæ black at the base, followed by a white and a black band; the rest blue, with 8 or 9 black-tipped spines.

Length 21 mm.; tegmina, 19 mm.

CEYLON.

Type of *P. turbata* in the British Museum.

[The description is taken from the type of *P. turbata*, Walk.]

Genus MORPHACRIS.

Morphacris, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 790.
Cosmorhyssa, Stål, Recens. Orth. i, 1873, pp. 116, 121; Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 50, 123; xxx (1), 1888, pp. 18, 37.

Type, *Morphacris adusta*, Walk. (=*Gryllus sanguineus*, Thunb., immature).

Range. Africa, W. Asia, India, Greece (?).

Body long and slender. Scutellum of the vertex depressed, with a median carina, terminating in front in a slight ridge between the antennæ; costal ridge slightly prominent, sulcated; lateral carinæ obsolete. Pronotum with the median carina strongly marked; the principal sulcus is indistinct and placed considerably before the middle, and behind it are several strong continuous carinæ on each side. Tegmina long, narrow, slightly expanded on the costa towards the base, the postradial area extending to the middle. Wings yellow or red at the base, separated by a dark band from the outer hyaline area. Femora long, rather slender, not serrulated.

158. Morphacris citrina, *Kirby*.

Morphacris citrina, Kirby, Syn. Cat. Orth. iii, 1910, p. 219.
Cosmorhyssa sulcata, Saussure (*nec* Thunb.), Mém. Soc. Genève, xxviii (9), 1884, p. 124; xxx (1), 1888, p. 37.

Fig. 99.
Morphacris citrina.

Head brown, darker above and along the frontal ridge; upper part of the sides of the face below the eyes yellowish to the end of the clypeus beside the costal ridge. Pronotum brown, with a black band on the pleura, marked below with a raised yellowish line. Abdomen yellowish, with a shining black spot above near the base. Legs brown, hind femora within with two longitudinal black bands covering much of the surface; hind tibiæ yellow, with a dark band near the base. Tegmina brown, paler towards the inner margin, on which a few dark dots are visible; outer area subhyaline, slightly shining, and reticulated with square cells. Wings light sulphur-yellow at the base, bordered by a broad blackish band; outer area hyaline, somewhat clouded towards the extremity.

Length 20–27 mm.; expanse of wings, 42–45 mm.

India; Ceylon; Syria; Abyssinia.

The South-African *M. sulcata*, Thunb., is darker and more heavily marked.

Genus LERINA.

Lerina, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 602.

Type, *Lerina œdipodioides*, Bol.

Range. S. India.

Body very slender. Head smooth, front shining, frontal ridge sulcated; tempora trigonal, lanceolate, extending to the tip of the vertex, with the ridges acute; scutellum of the vertex subtransverse, carinated on the sides next to the eyes, distinctly narrowed in front, and truncated; ocelli distant from the margin of the vertex; antennæ filiform. Pronotum truncated in front, rectangular behind, smooth above, and carinated, the carina intersected before the middle by the principal sulcus. Pronotum sinuous in front, the lateral carinæ being compressed before the sulcus, with smooth rounded lobes; the deflexed lobes higher than long, with the hinder angles rectangularly rounded. Tegmina longer than the hind femora, narrow, subparallel-sided, with the discoidal area membranous from the central stigma to the tip, regularly reticulated with long rectangular cells, the spurious nervures complete; the basal half submembranous and irregularly reticulated; an intercalated nervure approximating to the median nervure, axillary nervure free. Wings with the discoidal nervure emitting two branches, the second closely approximating to the front ulnar vein, disk hyaline, with a curved brown band. Space between the metasternal lobes very narrow in the male, half as narrow as the space between the mesosternal lobes. Hind femora short, very broad at the base, with the upper carina very slightly serrulated; tibiæ with eight outer and nine inner spines, outer spurs rather shorter than the inner, and not pilose. Subgenital laminæ conical, very short.

159. Lerina œdipodioides, *Bol.*

Lerina œdipodioides, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 603.

Pale yellowish, varied with brown, and head and pronotum spotted with brown. Tegmina with three brown bands. Wings hyaline, pale yellow at the extreme base, behind with a suffused brown marginal band, not extending to the tip. Hind femora brown, broadly pale at the base, and with a narrow pale ring before the tip; hind tibiæ brown, with a narrow space near the base, and a broad one near the tip, pale.

Length, ♂, 16 mm.; pronotum, 3 mm.; tegmina, 17 mm.; hind femur, 9 mm.

Madras: Madura.

Type in the collection of M. Pantel.

Genus DITTOPTERNIS.

Dittopternis, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 52, 125; xxx (1), 1888, pp. 19, 44.

TYPE, *Dittopternis ceylonica*, Sauss.

Range. India, Ceylon, Australia, S. Africa.

Head broad, granulated; scutellum of the vertex 5-sided, longer than broad, truncated in front, and the lateral carinæ not extending behind the eyes; frontal ridge broadly sulcated, parallel-sided, continuous; antennæ longer than the head and pronotum. Pronotum granulose, the median carinæ bituberculate in front, and deeply cut by the principal sulcus before the middle; the front border truncated, behind this somewhat constricted to the principal sulcus; hind border rectangular, with the tip rounded off; deflexed lobes nearly square, with the borders slightly sinuated. Tegmina long, narrow, densely reticulate, and opaque to beyond the middle, then membranous and subhyaline, with complete intercalated nervures. Wings hyaline, with the base coloured, and a curved black band beyond. Hind femora denticulated, hind tibiæ with nine or ten spines.

Key to the Species.

1 (2) Head and pronotum slightly granular. .	*ceylonica*, Sauss., p. 139.
2 (1) Head and pronotum strongly granular.	
3 (4) Lateral lobes of pronotum rectangular behind	*venusta*, Walk., p. 140.
4 (3) Lateral lobes of pronotum oblique and rounded behind	*zebrata*, Sauss., p. 140.

160. Dittopternis ceylonica, *Sauss.*

Dittopternis ceylonica, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 125, 126; xxx (1), 1888, pp. 19, 44.

Reddish grey, marbled with brown. Head rather smooth, vertex between the eyes very slightly carinulated, with a few granules on the occiput; frontal ridge sulcated, much narrowed between the antennæ, and truncated above. Pronotum with the principal sulcus slightly before the middle, somewhat constricted before the sulcus, granulated in front, the carina raised, and well marked, the hind border forming less than a right angle, and rounded at the tip; deflexed lobes rectangular behind. Tegmina long, brown or ferruginous, the basal half with two chestnut bands, then narrowly dotted with grey, the hinder portion concolorous; the discoidal area beyond the middle subhyaline, with ferruginous nervures. Wings hyaline, base bright yellow, followed by a more or less extensive brown band; nervures of the costa brown; the rest hyaline, more or less clouded before the tip. Hind femora yellowish with three brown

bands, the last just before the tip; sometimes the inner surface is bluish; hind tibiæ blue, with a pale ring at the base.

Length 17–24 mm.; tegmina, 18–23 mm.; hind femur, 7–13 mm.

CEYLON.

Type in the Geneva Museum.

161. **Dittopternis venusta**, *Walk.*

Œdipoda venusta, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 740.
Dittopternis venusta, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 40.

Brown, paler beneath. Vertex with four diverging rows of pale granules running backwards from between the eyes; those in the two middle rows largest; a blackish band runs backwards from each eye over the occiput and part of the pronotum, bordered above and below by a slight yellow line; antennæ very long, tawny at the base, then banded with black and white, with a long white space not extending to the tip. Pronotum rugose, granulated and strongly carinated, cut by the principal sulcus before the middle, obtusely angulated behind, with the tip rounded; deflexed lobes quadrangular behind. Tegmina long, narrow, with the basal half and costa brown, with a large yellow blotch at one-fourth of the length extending half across the tegmina, and smaller yellowish spots along the costa and middle; the outer area subhyaline. Wings hyaline, yellow at the base, with a broad suffused blackish band beyond. Abdomen yellow, carinated, with a black tapering median band above, not extending to the tip. Hind femora tawny, with black transverse bands; hind tibiæ black at base, followed by a light yellow band, then blue; spines yellow, tipped with black; terminal spines and tarsi reddish.

Fig. 100.
Dittopternis venusta.

Length 25 mm.; expanse of tegmina, 53 mm.

S. INDIA.

Type in the British Museum.

162. **Dittopternis zebrata**, *Sauss.*

Dittopternis zebrata, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 125, 126; xxx (1), 1888, p. 44.

Fulvous, irrorated with brown, strongly rugose and granulated,

Occiput with two oblique lines of granules. Pronotum with the tip not very acute, the margins slightly waved, the hinder angle of the hinder lobes rather narrow, extending obliquely backwards with the hinder margin slightly concave. Tegmina dotted and spotted with black, and dotted with grey at the tip. Wings hyaline, with longitudinal brown nervures, yellow at the base, followed by a suffused brown band, and with the margin brown, streaked with hyaline in the male. Hind tibiæ blue.

Length 20–25 mm.; tegmina, 20–26 mm.

INDIA; BURMA.

Genus HETEROPTERNIS.

Heteropternis, Stål, Recens. Orth. i, 1873, pp. 117, 128; Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 129; xxx (1), 1888, pp. 19, 45.

TYPE, *Acrydium respondens*, Walk.

Range. Oriental Region, Africa.

Body rather slender. Head smooth or slightly granulated; vertex of the scutellum broad behind, narrowed and truncated in front, costal ridge sulcated, tempora oblong. Pronotum not much longer than broad, slightly compressed in front, and with the typical sulcus placed somewhat before the middle; hind border rectangular. Tegmina long, narrow, brown, speckled and blotched with subhyaline; wings hyaline, often more or less clouded, but with no dark curved band. Hind tibiæ red, claws very unequal, incurved.

Key to the Species.

Pronotum unicolorous .... *respondens*, Walk.
Pronotum paler behind .... *partita*, Walk.

163. Heteropternis respondens, *Walk.*

Acrydium respondens, Walker, Ann. Mag. Nat. Hist. (3) iv, 1859, p. 223.
Heteropternis pyrrhoscelis, Stål, Recens. Orth. i, 1873, p. 128; Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 129, 130; xxx (1), 1888, p. 46.

Rufo-testaceous, varied with black. Head rather smooth, lateral carinæ slender, frontal ridge punctured; antennæ brown, paler at the base, filiform, longer than the head and pronotum. Pronotum velvety, paler or darker above, with a continuous median carina, cut by the principal sulcus before the middle; the front somewhat constricted, and the pleura marked with a large square black spot, behind which is a round white callous one; deflexed lobes higher than broad, curving backwards and upwards; hind border of pronotum nearly rectangular, rounded at the extremity. Tegmina

Fig. 101.
Heteropternis respondens.
a. Apex of tibia with spurs.

longer than the abdomen, with large subhyaline spots and blotches along the costa, and a longitudinal row of subhyaline spots about the middle. Wings hyaline, more or less clouded towards the tips, and more or less tinged with red or yellow at the base. Hind femora yellowish, irregularly spotted and mottled with black above and on the outer side; red on the inner side and beneath; hind tibiæ red, with nine or ten small black-tipped spines, with the upper spine of the inner terminal pair much shorter and more slender than the lower ones. Under surface and legs with long white hairs.

Length 19–22 mm.; tegmina, 19–22 mm.

India; Ceylon; Burma; China; Malacca; Java; Sumatra.

164. **Heteropternis partita**, *Walk.*

Epacromia partita, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 780.

Dark brown, mottled with grey, antennæ reddish. Pronotum strongly angulated behind, and the hinder third reddish, the dark ground-colour cutting into this triangularly in front; median carina and hind border of the reddish portion narrowly bordered with black. Abdomen reddish brown above, blackish beneath. Tegmina brown at the base with a few pale spots; beyond subhyaline, reticulated with brown; wings hyaline, with brown nervures, except at the base, where the longitudinal nervures are bright yellow. Hind femora brown outside, lined with grey; lower outer space reddish, spotted with black; under and inner surface, and hind tibiæ and tarsi red; spines of hind tibiæ short, black.

Length 28 mm.; expanse of tegmina, 55 mm.

Ceylon: Hakgala.

Type in the British Museum.

Genus **ŒDALEUS**.

Œdaleus, Fieber, Lotos, iii, 1853, p. 126.

Type, *Acrydium nigrofasciatum*, De Geer.

Range. Old World.

Head large, frontal scutellum longer than broad, and truncated in front, with a slight median carina continued backwards over the vertex; frontal ridge parallel-sided, sulcated; tempora small, trigonal. Pronotum short, green or luteous, with incomplete

white cruciform marks; strongly carinated, and entire, the median sulcus visible on the sides of the pronotum before the middle; the hind border rectangular or obtusely angulated. Tegmina long, narrow, brown on the basal half, with white markings, then subhyaline with brown markings, intercalated areas subequal; wings yellowish at the base, with a broad dark central band. Hind femora with the upper margin generally entire.

Key to the Species.

1 (4)	Pronotum more or less pointed behind.	[p. 143.
2 (3)	Size moderate........................	*nigrofasciatus*, De Geer,
3 (2)	Size small	*abruptus*, Thunb., p. 144.
4 (1)	Pronotum rounded behind............	*senegalensis*, Krauss, [p. 143.

165. **Œdaleus nigrofasciatus**, *Sauss.*

Acrydium nigrofasciatum, De Geer, Mém. Ins. iii, 1773, p. 493, pl. xli, fig. 5.
Œdaleus nigrofasciatus, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 110, 116; xxx (1), 1888, p. 40.
Gryllus flavus, pt., Fabricius (*nec* Linnæus), Syst. Ent. 1775, p. 292.

Green or testaceous, banded with brown. Pronotum brown, with white markings above, forming an imperfect cross, and white markings on the pleura; central carina strongly marked, nearly straight, not usually cut by the principal sulcus, which is placed before the middle; hind border more or less angulated. Tegmina brown at the base, more or less varied with pale blotches; sometimes green along the inner margin; outer half subhyaline, more or less varied with brown blotches; wings greenish subhyaline at the base, with a broad black transverse band, curving inwards to the anal angle; tip clear hyaline, sometimes with a few blackish spots at the extremity. Hind femora pale, banded with black; hind tibiæ red, with a yellow ring at the base.

Fig. 102.
Œdaleus nigrofasciatus.

Length 18–38 mm.; pronotum, 4–8 mm.; tegmina, 16–24 mm.
S. Europe; W. Asia; India; Ceylon.

166. **Œdaleus senegalensis**, *Krauss.*

Pachytylus senegalensis, Krauss, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. lxxvi (1), 1877, p. 56, pl. i, fig. 9.
Œdaleus senegalensis, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 110, 117; xxx (1), 1888, pp. 40, 42.

Very similar to the last species, but the pronotum is much

shorter, the white lines are more slender, the principal sulcus is placed at or behind the middle, and the hinder edge of the pronotum is rounded. The tegmina are long and narrow, subhyaline, with the base varied with light brown, two larger blotches being more conspicuous than the others. Wings greenish hyaline towards the base, with the black transverse band rather narrow, not extending to the margin, and slightly interrupted towards the costa; apical area hyaline, the veins often broader and browner towards the extreme tip. Hind tibiæ darker red than in *Œ. nigrofasciatus*, fading to yellowish.

Length 26–31 mm.; tegmina, 20–30 mm.

Generally distributed in Asia and Africa.

167. **Œdaleus abruptus**, *Thunb.*

Gryllus abruptus, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 233; ix, 1884, pp. 396, 412, pl. xiv, fig. 5.
Pachytylus (*Œdaleus*) *abruptus*, Stål, Recens. Orth. i, 1873, p. 127.
Œdaleus abruptus. Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 110, 117; xxx (1), 1888, p. 40.

Green or testaceous, with brown and white markings. Scutellum of the vertex long, narrow, subtriangular, and pointed. Pronotum brown with white cross-marks above, and white and brown oblique stripes on the sides of the head and pronotum; angulated behind, with the principal sulcus placed much before the middle. Tegmina brown, with three pale bands before the middle; beyond the middle subhyaline, sometimes with the axillary area green. Wings very pale greenish yellow towards the base, with a brownish central fascia, more or less extended; outer area hyaline, more or less marked with brown. Tibiæ reddish, or glaucous, paler towards the base.

Length 13–20 mm.; tegmina, 15–19 mm.

India; Ceylon; China.

Genus **GASTRIMARGUS**.

Gastrimargus, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 109, 110; xxx (1), 1888, p. 37.

Type, *Gryllus virescens*, Thunb.

Range. Old World.

General characters of *Œdaleus*, but these are insects of large size, with the pronotum long, pointed behind, and longitudinally or obliquely striped with green, brown, and whitish. Femora generally serrulated above. Tegmina with the costal space above the intercalated area narrower than the lower one; wings generally yellow or blue, with a broad central band, and the apical area hyaline.

168. **Gastrimargus transversus**, *Thunb.*

Gryllus transversus, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 233; ix, 1824, pp. 396, 412.
Œdipoda citrina, Burmeister, Handb. Ent. ii, 1838, p. 645.
Œdaleus marmoratus, var. *minor*, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 39.

Fig. 103.—*Gastrimargus transversus.*

Green, antennæ reddish. Behind each eye a pale spot runs to the back of the head, bordered above and below with black, which is generally continuous on the front of the pronotum; in the most brightly coloured specimens there is an ill-defined pale band below the black, and below this again a black patch from the back of the head to the middle of the pleura, with a pale spot in front and behind. Pronotum acutely angulated behind, with a strong pale median carina, sometimes bordered with black, or with a black spot on each side at the extremity. Abdomen greenish. Tegmina long and narrow, the inner margin green, the rest of the tegmina brown to the middle, with whitish markings, especially a transverse one near the base; the outer half of the tegmina hyaline, generally more or less blotched with brown. Wings shorter than the tegmina, bright sulphur-yellow at the base, with a black central band curving round to the anal angle; beyond this, the wing is hyaline, more or less blackish at the tip. Hind femora long and slender, greenish or yellowish, spotted and dotted with black, and serrulated above; hind tibiæ red, often shading into greenish at the base, with the spines tipped with black.

Length, body, 30–45 mm.; hind femora, 19–25 mm.; expanse of tegmina, 70–85 mm.

Kashmir: Baltistan; Nepal; United Provinces: Garhwal; Assam: Sylhet; Bengal; Madras: Shevaroy Hills; Java; Celebes.

Genus **LOCUSTA.**

Locusta, Linnæus, Syst. Nat. (ed. x.) i, 1758, p. 431; Schrank, Enum. Ins. Austr. 1781, p. 246.
Gryllus, Fabricius, Syst. Ent. 1775, p. 287.

Acrydium, Latreille (*nec* Geoffroy), Hist. Nat. Crust. Ins. iii, 1802, p. 282; xii, 1804, p. 149.
Pachytylus, Fieber, Kelch, Grundl. Kenntn. Orthopt., 1852, p. 5.

TYPE, *Gryllus Locusta migratorius*, L.

Range. Old World.

Size large. Antennæ longer than the head and pronotum. Fastigium of the vertex broad, not depressed, subcarinated, passing over into the frontal ridge, which is broad and hardly sulcated. Pronotum more or less constricted in front, strongly ridged; the carinæ hardly intersected by the principal sulcus, which is placed about the middle and angulated behind; deflexed lobes with the hinder edge very slightly sloping. Tegmina very long, subhyaline, more or less stippled with brown; wings hyaline, with no dark central band. All the tibiæ spinose, hind femora hardly serrulated. Pectus broad, pilose, mesosternal lobes with the inner margins nearly straight, metasternal lobes widely separated. First segment of the abdomen with the tympanum slightly exposed.

Key to the Species.

Hind femora very slender .... *migratoroides*, R. & F.
Hind femora rather stout .... *danica*, L.

169. **Locusta migratoroides**, *R. & F.*

Œdipoda migratoroides, Reiche & Fairmaire, Ferret & Galinier, Voy. Abyssinie, iii, 1847, p. 430, pl. xxviii, fig. 12.
Pachytylus migratoroides, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 119, 120.

Greenish brown, or reddish brown; head generally with a slender pale line behind the eyes, bordered with reddish brown, and continuous with a broad parallel-sided reddish-brown band on each side of the pronotum. Pronotum granulated, constricted from a little behind the head to the middle. Tegmina mottled and reticulated with brown; wings hyaline. Hind femora rather long, not much thickened at the base, and regularly tapering. Hind legs brownish yellow, with the lower, and sometimes the upper, part of the femora reddish.

Length 42–46 mm.; tegmina, 46–60 mm.

Widely distributed throughout the Old World, except Europe.

170. **Locusta danica**, *L.*

Gryllus Locusta danicus, Linnæus, Syst. Nat. (ed. xii.) i (2), 1767, p. 702.
Pachytylus danicus, Aurivillius, Ent. Tidskr. xxi, 1900, pp. 246, 247.
Gryllus cinerascens, Fabricius, Spec. Ins. i, 1781, p. 369.

Green or brown, banded with brown. Behind the eye runs a brown stripe, generally intersected by a white line on the head,

across the head and pronotum; these stripes are narrower than in *L. migratoroides*, slightly converge behind, and do not extend to the extremity of the pronotum, which is smoother and less constricted than in *L. migratoroides*. Tegmina subhyaline, more or less extensively blotched and reticulated with brown, the dark blotches often showing a tendency to coalesce into transverse bands; wings greenish or yellowish hyaline. Hind femora green, thicker and less tapering than in *L. migratoroides*; black on the inside to the middle, and with a large black patch beyond; upper surface serrulated; hind tibiæ red. Male much smaller than the female.

Fig. 104.—*Locusta danica.*

Length 32–60 mm.; pronotum, 7·5–14 mm.; tegmina, 35–58 mm.

Found almost throughout the Old World.

Genus MECISTOPTERYX.

Mecistopteryx, Saussure, Mém. Soc. Genève, xxx (1), 1888, pp. 20, 52.

Type, *Œdipoda rotundata*, Walk.

Range. India.

Size small. Antennæ filiform, rather thickened in the middle and pointed at the tip. Eyes rounded, large, and prominent; within each a carina runs from the vertex, nearly straight, but rather irregular below, and curving a little outwards to the end of the clypeus; on the vertex two other carinæ curve inwards to form the scutellum of the vertex, and the sulcation of the frontal ridge, which is divided by a transverse carina in its narrowest part above the antennæ; occiput rugose. Pronotum strongly crested, with the three sulci very strongly marked, the first and last intersecting the median carina; the lateral carinæ slightly marked; the hind border obtusely rounded; deflexed lobes nearly square, but the hinder angle rounded off. Tegmina narrow at the base, much widened before the extremity, with the

costa arched; costal area very broad, with several intercalated nervures; wings short and broadly subhyaline, with clouded border, widely meshed on the front half, very closely on the hinder half. Hind femora moderately stout, somewhat constricted before the extremity.

171. **Mecistopteryx rotundata**, *Walk.*

Œdipoda rotundata, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 743.
Mecistopteryx rotundata, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 53, pl. ii, fig. 3.

Head and pronotum brown, antennæ reddish, paler towards the base beneath, abdomen blackish. Tegmina light brown for two-thirds of their length, with whitish subhyaline marks; a streak below the median nervure near the base; a large blotch extending nearly across the wing from the costa, and an irregular band beyond, spreading out half-way to the base above the submedian nervure, and below it along the inner margin nearly to the base; outer third of the tegmina subhyaline, indistinctly clouded, and with some darker spots along the costa. Wings bluish hyaline, with the border clouded, the upper half almost as widely meshed as in the American Tryxaline genus *Hyalopteryx*, and the hinder half very closely reticulated with pale nervures, almost as in the Neuropterous genus *Neurothemis*. Hind femora yellowish, inner and lower surface black, with three yellowish bands, the first incomplete above, before the extremity; knees wholly black above; hind tibiæ black, with a white streak towards the base, and two broad white bands, eight rather irregular black spines on each side, and whitish tarsi.

Fig. 105.
Mecistopteryx rotundata.

Length 15 mm.; hind femur, 9 mm.; expanse of tegmina, 32 mm

NORTH BENGAL.

Type in the British Museum.

Genus **TRILOPHIDIA**.

Trilophidia, Stål, Recens. Orth. i, 1873, pp. 117, 131; Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 56, 157; xxx (1), 1888, pp. 21, 54.

TYPE, *Œdipoda cristella*, Stål.

Range. Oriental Region, Africa.

Rather slender, pubescent. Antennæ slightly thickened towards the tip. Scutellum of the vertex broad, sloping, truncated

at the extremity, frontal ridge imperfectly sulcated; lateral carinæ starting from near the lower extremity of the eyes, and angulated. Pronotum with a nearly straight carina, cut by the principal sulcus before the middle, and angulated behind; deflexed lobes higher than broad. Tegmina long and narrow, brown, the costal area almost equally divided by the principal intercalated nervure; wings long, narrow. Hind femora moderately broad.

Several of the species curiously resemble the Noctuid genus *Agrotis*.

Key to the Species.

1	(4) Crest of the pronotum deeply cut by two sulci.	
2	(3) Wings not yellow at the base	*annulata*, Thb., p. 149.
3	(2) Wings yellow at the base	*turpis*, Walk., p. 149.
4	(1) Crest of the pronotum only slightly indented by the sulci	*cristella*, Stål, p. 150.

172. **Trilophidia annulata**, *Thunb.*

Gryllus annulatus, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 234; ix, 1824, pp. 395, 409.
Gryllus bidens, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 235; ix, 1824, pp. 398, 422.
Trilophidia annulata, var. *b.*, Stål, Recens. Orth. i, 1873, p. 132.

Brown or grey, with black markings, pubescent beneath. Antennæ slightly thickened, pale at the base. Pronotum rugose, with a high median carina, forming two teeth in front, and with lateral carinæ. Tegmina grey, sometimes with two indistinct brown bands, the extremity brownish hyaline; wings yellow at the base, and brown or black beyond. Femora and tibiæ marked as in *T. cristella*, but the femora are thicker.

Length 13–16 mm.; tegmina, 12·5–16 mm.

CEYLON.

Saussure's description of *T. annulata* agrees neither with Thunberg's nor with Walker's *T. aspera*, but with *T. vulnerata*, De Haan (Orth. pp. 161, 162, pl. xxi, fig. 13). *T. annulata* is either a very variable species or (which is more probable) there are a number of closely allied species in different parts of the Oriental Region.

173. **Trilophidia turpis**, *Walk.*

Epacromia turpis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 775.
Trilophidia annulata, var. *ceylonica*, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 158.

Brown, granulated; scutellum of the vertex passing into the frontal ridge; antennæ ringed with black and tawny. Pronotum rectangular behind; abdomen blackish in the middle above. Teg-

mina brown, with two large pale spots on the costa before the middle, the outer half dusky subhyaline, with rather indistinct alternate brown and subhyaline spots running round the apex; wings iridescent hyaline, clouded towards the apex, and stained with yellow at the base and inner margin. Front legs banded with black and grey; hind femora yellowish grey externally, with blackish spots on the carinæ, and black on the inside, with a large square white spot before the tip; hind tibiæ black, with two white bands and with about eight mostly black-tipped spines, the terminal ones rather long.

Length 14 mm.; expanse of tegmina, 32 mm.

INDIA; CEYLON.

Type in the British Museum.

174. **Trilophidia cristella**, *Stål.*

Œdipoda cristella, Stål, Eugenie's Resa, Orth. 1860, p. 344.
Trilophidia cristella, Stål, Recens. Orth. i, 1873, p. 344; Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 157, 158.
Trilophidia annulata, var. *a*, Stål (*nec* Thunb.), Recens. Orth. i, 1873, p. 131.
Epacromia aspera, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 775.

Testaceous yellow, scarcely granulated, with the carinulæ of the ccipnt only slightly marked. Pronotum with the crest serrated rather than dentated, with a black median stripe, and black marks on the pleura; lateral lobes brown, pale below. Pectus brown on the sides, with two pale spots. Tegmina brown, not spotted; wings brown, paler at the base. Front legs indistinctly spotted with brown, hind femora pale outside, spotted above with brown, inside black, with a pale band before the extremity; hind tibiæ brown, with a pale band towards the base, and with a slight pale band beyond the middle; spines pale at the base.

Fig. 106.
Trilophidia cristella.

INDIA; JAVA; PHILIPPINES, etc.

Genus BRYODEMA.

Bryodema, Fieber, Lotos, iii, 1853, p. 129.

TYPE, *Œdipoda gebleri*, Fisch.-Waldh., from Siberia.

Range. Europe, Asia, south to Hongkong and North India.

Large, stout, granulated insects. Vertex broad, bordered by shallow lateral carinæ curving backwards within each eye to the

occiput; the space between punctured, hardly depressed, not carinated, and passing over into the sulcation between the frontal carinæ; the carinæ of the vertex pass just within the eyes, and are continued as well-marked lateral facial carinæ, but do not quite extend to the extremity of the clypeus. Antennæ short, filiform. Pronotum short, broad, granulated, angulated behind, very slightly raised, with the median carina and the sutures slightly marked; the principal suture placed about the middle; depressed lobes higher than broad, nearly rectangular behind. Tegmina long, roundly truncate at the extremity, closely reticulated, with the intercalated nervure equidistant from the costa and the radial nervure. Wings shorter than the tegmina and not much longer than broad, with the principal longitudinal nervures thickened, and between them branching accessory nervures; towards the base with numerous parallel transverse nervures, and irregularly reticulated towards the margins. Tegmina and wings sometimes abbreviated in the female. Legs short, hind tibiæ with nine or ten spines.

175. **Bryodema inda**, *Sauss.*

Bryodema inda, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 179, 181.

Head shading into grey; antennæ and legs reddish. Pronotum granulated, nearly rectangular behind, with the apex rounded off. Abdomen black, shining, cerci red. Tegmina brownish grey, with reddish nervures; wings black to beyond the middle, but lighter in the middle of the dark area, and subhyaline beyond; the principal longitudinal nervures in the dark area are much thickened, and deep black. Front and middle tibiæ with small spines; hind femora brown outside, and black inside and beneath, with a pale band before the extremity; hind tibiæ bright red, with black-tipped spines.

Fig. 107.—*Bryodema inda.*

The female is described by Saussure as large and stout, with tegmina shorter than the abdomen, and with small wings.

Length 27–39 mm.; tegmina, 20–38 mm.; expanse of tegmina, 83–87 mm.

India (*teste* Saussure); Tibet: Dakar.

The Tibetan specimens are not so dark in the wings as Saussure's description suggests the Indian specimens to be. Bianchi rightly observes that the Indian examples are probably Himalayan.

Genus ACROTYLUS.

Acrotylus, Fieber, Lotos, iii, 1853, p. 125.

Type, *Gryllus insubricus*, Scop.

Range. S. Europe, Africa, Asia, Australia.

Size rather small. Body pubescent, pronotum stouter than the abdomen. Antennæ filiform, variable in length. Head short, rather large; eyes rounded, prominent; costal ridge rather broadly sulcated, becoming narrower in front, and frequently acuminated or constricted on the vertex; scutellum of the vertex triangular, concave. Pronotum short, more or less constricted in front, with the hind margin rounded or obtusely triangular, distinctly carinated throughout, with the carina generally intersected by the front sulcus, and also by the typical sulcus at or before the middle; deflexed lobes much higher than long, with the hinder angle rounded off, not produced, and the hind margin nearly straight. Tegmina narrow, with the apical area subhyaline; the costa expanded near the base, and the costal area divided almost equally longitudinally by the intercalated nervure; the outer intercalated nervures frequently obsolete; median nervure absent. Wings hyaline, generally red or yellow at the base, with a dark curved central band. Hind femora generally yellowish, with blackish bands or spots above, and black on the inner side; hind tibiæ more or less blue, with the terminal spurs unequal.

Key to the Species.

[Wings red at the base .... *inficita*, Walk.
Wings yellow at the base .... *humbertianus*, Sauss.]

176. **Acrotylus inficita**, *Walk.*

Œdipoda inficita, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 742.

[Light brown, testaceous beneath. Head short; tip of the vertex conical, concave, with a carina on each side; the four carinæ of the front well defined, the lateral ones diverging much towards the clypeus; eyes elliptical; antennæ blackish towards the tips. Pronotum short, with a distinct carina; on each side a black subquadrate patch, bordered with testaceous, and including a callus of that colour; hind border rounded, not elongated. Abdomen testaceous, as long as the hind femora.

Hind femora testaceous on the inner side, where there are two black patches; hind knees black, hind tibiæ yellow, much shorter than the hind femora, the spines tipped with black. Tegmina with the basal half light brown, except a brown costal stripe and a middle stripe of darker brown spots and dots; this stripe extends along the apical half, which is hyaline; there is a triangular testaceous spot in the front margin about one-third from the base. Hind wings hyaline bright reddish-rose at the base, with a rather broad, lunate, brown spot on the disk; there are a few small brown spots along the costal margin and two at the apex.

Length 23 mm.; tegmina, 22 mm.

N. Bengal: Ceylon.

Type in the British Museum.]

177. **Acrotylus humbertianus**, *Sauss.*

Acrotylus humbertianus, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 189.
Œdipoda inficita, var. *β*, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 742.

[Fulvous grey, whitish beneath, pubescent. Body somewhat smooth; vertex a little prominent. Pronotum finely carinate; prozona with two fuscous fasciæ, the lateral margin white below. Tegmina with two oblique white fasciæ or spots, the discoidal area hyaline beyond the middle in front, the transverse nervures somewhat tinted with fuscous; no spurious veins; the areoles large; the posterior intercalate space with a line of fuscous spots. Wings hyaline, yellow at the base; the radial area with a semilunar fuscous fascia. The posterior femora fasciate.

Fig. 108.
Acrotylus humbertianus.

Length, ♀, 18 mm., ♂, 14 mm.; tegmina, ♀, 10 mm., ♂, 16 mm.

Ceylon.]

Genus SPHINGONOTUS.

Sphingonotus, Fieber, Kelch, Orthopt. Oberschles., 1852, p. 2.
Sphingonotus, Fieber, Lotos, iii, 1853, p. 124.
Sphinctonotus, Fischer, Orth. Eur. 1853, pp. 52, 297.

Type, *Gryllus Locusta cærulans*, L.

Range. Cosmopolitan.

Body slender, punctured; colour grey, pale beneath. Scutellum of the vertex ovate, sloping, concave, subcarinated; antennæ longer than the head and pronotum together; frontal ridge frequently sulcated. Pronotum constricted in front, rectangular

or obtusely angulated behind, the deflexed lobes higher than long, the hinder angle obtuse, produced, the median carina only slightly indicated, and cut by the principal sulcus much before the middle. Tegmina grey, with darker markings, membranous almost throughout; wings bluish hyaline, or brightly coloured, with a curved black band. Hind femora generally black on the inner side, hind tibiæ generally blue.

Key to the Species.

[1 (4) Wings with no dark band.
2 (3) Tegmina brown, distinctly banded; wings tinted with pale blue .... *cærulans*, L., p. 154.
3 (2) Tegmina brownish-testaceous; more vaguely banded; wings with very little trace of blue .... *rubescens*, Walk., p. 155.
4 (1) Wings with a curved transverse band.
5 (6) Wings with band confined to posterior half.................... *bengalensis*, Sauss., p. 156.
6 (5) Wings with band extending from costa to anal angle.
7 (14) Wings without dark spot at the apex.
8 (11) Wings with narrow light brown band.
9 (10) Tegmina with intercalate vein strong, touching the apex of the median vein.................. *savignyi*, Sauss., p. 155.
10 (9) Tegmina with intercalate vein not touching the apex of the median vein .... *indus*, Sauss., p. 156.
11 (8) Wings with broad dark band.
12 (13) Smaller; base of wings scarcely blue .... *balteatus*, Serv., p. 157.
13 (12) Larger; base of wings blue ...... *longipennis*, Sauss., p. 156.
14 (7) Wings with a broad dark spot at apex .... *gigas*, sp. n., p. 158.]

178. **Sphingonotus cærulans**, *L.*

Gryllus Locusta cærulans, Linnæus, Syst. Nat. (ed. xii.) i (2), 1767, p. 701.

Grey or light reddish-brown, the head and sides of pronotum often largely white or bluish-white. Antennæ ringed with reddish-brown and yellowish-white. Pronotum with the median carina very slightly marked, hind border rectangular. Tegmina light brown on the basal third, then subhyaline, with more or less numerous light brown spots and irregular transverse bands; wings hyaline, unspotted, generally light blue. Legs brown, with pale rings; hind femora generally black on the inside, with

a yellow band before the tip ; hind tibiæ blue, with a yellow band towards the base, marked before and behind with black.

Length 18–27 mm. ; tegmina, 17–30 mm.

EUROPE ; NORTH AFRICA ; WESTERN & CENTRAL ASIA ; INDIA : Himalayas.

Found on stony, sunny hill-sides, near rivers and brooks.

179. **Sphingonotus rubescens**, *Walk.*

Œdipoda rubescens, Walker, Zoologist, (2) v, 1870, p. 2301.
Sphingonotus cærulans var. *candidus*, Costa, Atti Accad. Nap. (2) i (9), 1888, p. 50.
? *Sphingonotus savignyi*, Savigny, Descr. de l'Égypte, Ins. Orth. pl. vii, fig. 13, 1 ♀.

Very similar to the last species, but paler, with longer tegmina and wings. Wings iridescent hyaline, very slightly, if at all, tinged with blue. Hind femora black inside, often with two yellow bands ; hind tibiæ blue, black at the base, followed by a yellow band.

Length 22–23 mm. ; expanse of tegmina, 50–65 mm.

SARDINIA ; GREECE ; MADEIRA ; EGYPT ; ARABIA ; BALUCHISTAN.

180. **Sphingonotus savignyi**, *Sauss.*

Sphingonotus savignyi and stirps *apicalis*, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 198, 208 ; xxx (1), 1888, p. 78 ; Savigny, Descr. de l'Égypte, Ins. Orth. pl. vii, fig. 13, 2 ♀.

Slender ; grey or reddish, head and under surface varied with white ; head prominent, vertex convex, finely carinated, antennæ ringed with whitish. Pronotum constricted in front, obtusely rounded off behind, sometimes with two diverging whitish dorsal fasciæ, and a whitish stripe and spot on the sides ; upper surface thickly punctured, median carina slender ; deflexed lobes with the lower margin oblique or irregular, distinctly angulated behind. Tegmina with the basal third opaque, light reddish brown, very thickly reticulated ; the rest subhyaline, more widely meshed, especially towards the extremity, generally with two slightly-indicated transverse light brown bands, and scattered brown spots beyond ; intercalated nervure waved, united with the median nervure at its extremity, and occupying a space resembling the discoidal cell on a butterfly's wing. Wings greenish hyaline, with a curved dark brown band, narrow or moderately broad, and in the former case sometimes subinterrupted on the upper part of the wing-covering from the middle of the costa to above the anal angle, but not extending to the hind margin ; nervures of the wings colourless, except some of the longitudinal nervures, and those on the dark band, which are oftened blackish.

Hind femora pale, with three blackish bands above, the last extending more or less on the sides.

Length, 20–33 mm.; expanse of tegmina, 46–73 mm.

KASHMIR: Ladak; SIND: Karachi; CENTRAL & WESTERN ASIA; N. AFRICA.

181. **Sphingonotus indus**, *Sauss.*

Sphingonotus indus, Saussure, Mém. Soc. Genève, xxviii (9), 1884, p. 204.

Slender, pale reddish brown or grey, whitish beneath. Head punctured, costal ridge parallel-sided. Pronotum thickly punctured behind and on the sides, median carina slender, hind border rectangular; deflexed lobes rounded behind. Tegmina thickly and irregularly reticulated at the base, with pale brown bands beyond, and pale blotches towards the apex; the intercalated nervure not contiguous to the median nervure. Wings hyaline, with a rather narrow brown band, arched behind, and extending to above the anal angle, but not to the hind margin.

Length 25–30 mm.; tegmina, 29–37 mm.

HIMALAYAS.

Type in Saussure's collection.

182. **Sphingonotus bengalensis**, *Sauss.*

Sphingonotus bengalensis, Saussure, Mém. Soc. Genève, xxx (i), 1888, pp. 77, 80, n. 7.

Stout, rugose, brown, often mottled and spotted with black. Head very broad, blackish above, and varied with bluish grey and reddish behind and below the eyes; antennæ reddish. Pronotum very rugose, with no distinct median carina, rectangular or acutely angulated behind. Tegmina with the anal third brown, densely reticulated, and terminated by a darker transverse band; the rest subhyaline, with two transverse brown bands, and some large brown spots on the outer third of the wing, which is clearer hyaline than the rest, chiefly in the lower margin. Wings light hyaline blue, with an incomplete brown band on the lower half of the wing, not extending nearly to the anal angle, nor the hind margin. Hind femora yellow, with a black band on the inner side before the tip, and the knees and base of the hind tibiæ black on the inside; hind tibiæ blue.

Length, 22 mm.; expanse of tegmina, 45 mm.

NORTH BENGAL.

183. **Sphingonotus longipennis**, *Sauss.*

Sphingonotus longipennis, Saussure, Mém. Soc. Genève, xxviii (9), 1884, pp. 197, 203; xxx (1), 1888, pp. 78, 85.

Greyish brown, punctured. Head and sides of pronotum some-

times whitish; central ridge parallel-sided, constricted below the eyes. Pronotum regularly recurved in front, rectangular behind, with no median carina; deflexed lobes oblique beneath. Tegmina and wings rather long; tegmina light brown at the base, thickly reticulated, followed by a wide pale space, and a rather ill-defined broad brown transverse band. Wings blue to the middle, followed by a black band, varying in width, curving from the middle of the costa to above the anal angle, but not extending to the hind margin, which, as well as the whole area beyond the band, is clear hyaline. Hind femora blue, inner surface black with a pale band before the tip, and with black bands above; tibiæ alternately banded with blue and black.

Fig. 109.
Sphingonotus longipennis.

Length 32–35 mm.; expanse of tegmina, 62–79 mm.

PUNJAB: Malakand; ASSAM: Sylhet.

In the specimen from Malakand, the wings are rather paler blue, and the black band is narrower than in those from Sylhet.

184. **Sphingonotus balteatus**, *Serv.*

Œdipoda balteata, Serville, Ins. Orth. 1839, p. 734.
Sphingonotus balteatus, pt., Saussure, Mém. Soc. Genève, xxx (i), 1888, pp. 78, 86.

Grey, or reddish-grey, thickly punctured. A very slight median carina on the vertex and pronotum. Pronotum obtusely rounded behind, deflexed lobes with the lower border slightly concave, and the angles before and behind well-marked; abdomen mostly blackish above. Tegmina with the basal third opaque, greyish brown or reddish, densely reticulated; beyond this is a pale space, followed by a transverse brown band, the rest of the wing is subhyaline, with numerous dusky transverse nervures, some being clustered together to form a second ill-defined band. Wings with the whole centre filled up by a very broad black band, the base of the wing being narrowly blue, and a narrow blue edging runs from this along the inner and lower part of the hind margins till it fades into the apical third of the wing, which is clear hyaline; the upper part of the band is sometimes subinterrupted towards the costa. Hind femora reddish grey, the inner side blue-black, with a pale band before the extremity;

hind tibiæ blue, varied with white, the spines tipped with black; hind tarsi whitish.

Length 34–35 mm.; expanse of tegmina, 70–88 mm.

BOMBAY; KASHMIR: Baltistan.

Type in the Paris Museum.

185. **Sphingonotus gigas**, sp. nov.

Buff, with a double row of black spots on the middle segments of the abdomen. Pronotum finely rugose, carinated throughout, and with scattered raised nodules. Legs rather short, pubescent, with 9 outer and 10 inner rather stout black-tipped spines on the hind tibiæ. Tegmina very long, and obtusely rounded at the extremity, as are also the wings. Wings white (possibly blue or red in life), with a broad black rectangular band running from the middle of the costa nearly to the inner margin, but not extending either to the inner or hind margin; apex of wing rather broadly black.

Length 53 mm.; expanse of tegmina, 115 mm.

BALUCHISTAN: Quetta.

Type in the Indian Museum, Calcutta.

Subfamily V. BATRACOTETRIGINÆ.

Genus **EREMOPEZA**.

Eremopeza, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 133.
Eremoplava, Saussure (*nec* Stål), Mém. Soc. Genève, xxviii (9), 1884, pp. 62, 232.

TYPE, *Eremobia cinerascens*, Stål, from Persia.

Range. Persia, Baluchistan.

Very stout and rugose; front and vertex not areolated; scutellum of the vertex rather flat, slightly oblique, granulated; frontal ridge narrow, very narrowly sulcated. Pronotum slightly raised in front, but hardly ridged, very slightly carinated in the middle, hind border acutely angulated. Abdomen slightly carinated at the base. Tegmina rather short, subparallel-sided with the hind margin obliquely rounded; wings hyaline, with a dusky curved band. Hind femora strongly serrated and granulated; hind tibiæ short; arolia very small.

Key to the Species.

Pronotum studded with raised yellow granules .... *granulosa*, Walk.
Pronotum without raised granules ...... *brachycera*, sp. n.

186. Eremopeza granulosa, *Walk.*

Œdipoda granulosa, Walker, Cat. Derm. Salt. B.M. v, Suppl., 1871, p. 76.
Eremocharis granulosa, Saussure, Mém. Soc. Genève, xxx (1), 1888, p. 134.

Grey or whitish, with darker markings. Strongly granulated over the pronotum, and to a less extent on the head, especially on the sides, but also on the scutellum of the vertex, which slopes down to the frontal ridge, which is formed of three approximating parallel carinæ to the level of the antennæ; back of head carinated, and bordered on each side by transverse striæ. The carina is continued over the pronotum, but is only slightly raised, and is very finely sulcated through most of its length; the pronotum shows traces in the female of numerous black spots and bands on the back and sides; and the hind lobe is probably blackish in life. Abdomen slightly carinated at the base, and probably with black transverse bands. Tegmina rufo-testaceous, with numerous dark blotches in the female. Wings hyaline, more or less yellow towards the base, and with an interrupted brown band beyond the middle. Hind femora pubescent, white inside and grey outside, with a row of large black spots in the female on at least the lower outer area, and probably also on the upper; hind tibiæ blue in the male, with 8 or 9 whitish black-tipped spines.

Length 38–50 mm.; tegmina, 30–35 mm.

BALUCHISTAN; BOMBAY.

The specimens appear to be much discoloured by spirit, so that the description is only provisional. Possibly they are not sexes of the same species, but distinct.

Type in the British Museum.

Fig. 110.—*Eremopeza brachycera.*

187. Eremopeza brachycera, sp. nov.

Very similar to the last species, but much less rugose. Frontal costa not granulated; small raised ridges radiating round the eyes. Pronotum with the front arched, trilobate, the carina continuous, but only slightly prominent, and narrowly sulcated throughout. Antennæ hardly longer than the head and

pronotum, the terminal joint twice as long as the preceding joint, tapering, but rather obtusely pointed. Pronotum rectangular behind, and fringed with hairs. Tegmina rufo-testaceous, hardly as long as the abdomen, and rounded at the extremity. Wings subhyaline with brown nervures, yellowish towards the base, followed by a brown band curving round to above the inner margin. Abdomen and legs reddish, clothed with whitish pile; hind femora crenate above, and tuberculate on the outer side; hind tibiæ with 8 or 9 black-tipped spines.

Length, 44 mm.; expanse of tegmina, 66 mm.

BALUCHISTAN: Quetta.

Type in the British Museum.

Subfamily VI. PYRGOMORPHINÆ.

Key to the Genera.

[1	(22)	Tegmina of ordinary elongate form.	
2	(3)	Anterior margin of prosternum strongly reflexed and dilated............	CHROTOGONUS, Serv., p. 161.
3	(2)	Anterior margin of prosternum neither reflexed nor dilated.	
4	(7)	Antennæ remote from the eyes, placed in front of the ocelli.	
5	(6)	Tegmina long and narrow, body moderately slender.	ATRACTOMORPHA, Sauss., p. 180.
6	(5)	Tegmina rather short and broader; body very robust	TAGASTA, Bol.,* p. 179.
7	(4)	Antennæ near the eyes and inserted below the ocelli.	
8	(21)	Posterior lobe of pronotum level; abdomen without callosities; the sternal lamina margined in front.	
9	(14)	Outer apical spine of posterior tibiæ absent or difficult to detect.	
10	(13)	Posterior angle of lateral lobes rounded or truncate.	
11	(12)	Tegmina developed	PYRGOMORPHA, Serv., p. 174.
12	(11)	Tegmina absent	ANARCHITA, Bol.,* p. 178.
13	(10)	Posterior angle of lateral lobes rectangular; pronotum compressed; tegmina short, not reaching to middle of abdomen ..	ZARYTES, Bol.,* p. 177.

* These genera are only known from description.

14 (9) Outer apical spine of posterior tibiæ very distinct.
15 (16) Posterior sulcus of pronotum scarcely behind the middle; body robust; tegmina and wings fully developed .... PŒCILOCERUS, Serv., p. 170.
16 (15) Posterior sulcus of pronotum placed some distance behind the middle.
17 (18) Tegmina and wings absent. ORTHACRIS, Bol., p. 184.
18 (17) Tegmina abbreviated.
19 (20) Tegmina elliptical ovate, about the same length as the pronotum; body slender .... CHLORIZEINA, Brunn.,* p. 174.
20 (19) Tegmina very narrow, linear, longer than the pronotum .... COLEMANIA, Bol.,* p. 188.
21 (8) Posterior lobe of pronotum convex, raised above the level of the anterior lobes, with strong rugæ; abdomen with dorsal callosity. AULARCHES, Stål, p. 168.
22 (1) Tegmina much dilated towards the apex, obliquely truncate, more or less leaf-like.............. TRIGONOPTERYX, Charp., p. 189.]

Genus CHROTOGONUS.

Chrotogonus, Serville, Ins. Orth. 1839, p. 702.

TYPE, *Ommexycha lugubre*, Blanch., from Egypt.

Range. Africa, Asia, Australia.

Size small, body short and stout. Head small, narrowed towards the front; antennæ short, filiform, inserted close together between the eyes. Pronotum more or less rugose, much widened behind; hind border obtusely angulated or rounded. Tegmina generally shorter than the abdomen, and nodose; wings often abbreviated. Hind femora moderately stout; hind tibiæ slightly thickened towards the extremity, with no terminal spine on the upper outer carina; the other terminal spines of nearly equal length.

Key to the Species.

1 (6) Wings well developed, longer or scarcely shorter than the tegmina.
2 (3) Tegmina not extending to the apex of the hind femora .... *pallidus*, Blanch., p. 162.
3 (2) Tegmina extending to apex of hind femora.
4 (5) Pronotum with the posterior angles projecting, very acute . *robertsi*, sp. n., p. 164.

5 (4) Pronotum with the posterior angles less projecting, slightly obtuse .... { *fuscescens*, sp. n., p. 163. } ? *brevis*, Bol., p. 163.

6 (1) Wings distinctly shorter than the tegmina.

7 (10) Wings extending at least to the middle of the hind femora.

8 (9) Tegmina almost covering the abdomen.................. *incertus*, Bol., p. 163.

9 (8) Tegmina shorter than the abdomen .... *trachypterus*, Blanch., p. 165.

10 (7) Wings very short or wanting.

11 (12) Tegmina as long as the abdomen. *liaspis*, Blanch., p. 165.

12 (11) Tegmina scarcely extending beyond the middle of the abdomen.

13 (20) Tegmina half as long as the abdomen.

14 (15) Size small .... *oxypterus*, Blanch., p. 166.

15 (14) Size larger.

16 (19) Tegmina gradually and much acuminate.

17 (18) Hind femora with a distinct black spot above .... *saussurei*, Bol., p. 166.

18 (17) Hind femora without dark spot. *concavus*, sp. n., p. 165.

19 (15) Tegmina subparallel-sided in the middle, arcuately acuminate at apex .... *sordidus*, sp. n., p. 167.

20 (13) Tegmina quite rudimentary .. *brachypterus*, Bol., p. 167.

[The foregoing was left uncompleted. It has been finished from Bolivar's Key (Bol. Soc. Españ. iv, 1904, p. 92) and the new species added in their places, so far as the scanty materials permit; but it should be borne in mind that the males are generally narrow and have longer tegmina than the females, and individuals of the same sex and species vary considerably in the length of the tegmina and wings.]

188. **Chrotogonus pallidus**, *Blanch.*

Ommexycha pallidum, Blanchard, Ann. Soc. Ent. France, v, 1836, p. 623, pl. xxii, fig. 10.

Dull pale yellow. Head short, with short longitudinal black lines behind the eyes. Antennæ yellow, tipped with blackish. Eyes pale, round, prominent. Pronotum short, broad, ridged above, hind border not festooned, the edges rather paler, with a brown spot on each side; two approximating black granules in front, and a row of large black tubercles behind. Sternum yellow, spotted with black. Tegmina as long as the abdomen in the male, shorter in the female; with numerous indistinct small black dots, in longitudinal rows, the central row marked with white in the male. Wings completely hyaline, and rather longer than the tegmina in the male, shorter in the female. Abdomen smooth, yellow, spotted with black beneath. Four front legs pale yellow,

with some darker spots; hind legs slender; hind femora with two blackish spots above and rows of small dots beneath; tibiæ slender, with short and slender spines.

Length 13 mm.; tegmina, 8 mm.

BOMBAY.

Type in the Paris Museum.

189. **Chrotogonus brevis,** *Bol.*

Chrotogonus brevis, Bolivar, Bol. Soc. Españ. iv, 1904, pp. 92, 99.

Pale ochreous, spotted with black beneath. Head granulose above, vertex concave between the eyes, slightly produced before them, and roundly subangular; antennæ short, brownish at the tips; front (seen from the side) sinuated and granulated. Pronotum scabrous and sparingly granulose, with no lateral carinæ, the median carina complete on the metazona, the front margin with black granules, the hind border obtuse-angular, almost quadriplicate, lateral lobes rather concave behind the sulcus, and strongly granulose, the lower margin slightly sinuated, subreflexed in front, and produced chiefly towards the hinder angle, the hind margin rounded near the angle. Tegmina longer than the abdomen, the ulnar nervure with white raised nodules adjoining small black dots, the mediastinal area expanded beyond the base. Wings rather shorter than the tegmina, hyaline. Space between the mesosternal lobes as long as broad, with the lateral borders obtusely angulated before the middle. Femora with grey pubescence, the carina marked with black.

Length 18 mm.; tegmina, 15 mm.

SIND: Karachi.

Type in the Paris Museum.

190. **Chrotogonus incertus,** *Bol.*

Chrotogonus incertus, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 38, 45, 494.

Reddish brown, pale beneath, spotted with brown. Head short, tuberculate in front, vertex concave. Pronotum rugose-tuberculate, behind acutely angulate, with the outer margin yellow. Tegmina nearly as long as the abdomen, with one row of small tubercles, the nervures reddish. Wings in the female one-fifth shorter than the tegmina, slightly brown. Hind femora granulate, pubescent, with rather indistinct brown spots. Abdomen brownish on the back.

Length 20 mm.; tegmina, 12 mm.

ASSAM: Sylhet; CHINA.

Type in the collection of Brunner von Wattenwyl.

191. **Chrotogonus fuscescens,** sp. nov.

Brown above, pale beneath. Scutellum of the vertex obtusely pointed in front; vertex within the eyes bordered by a row of

granules; occiput in the male with two black dashes in the middle, and one behind each eye; face below the antennæ and eyes pale yellowish on the whole front and sides, this colour extending to the lower border of the deflexed lobe of the pronotum; lower part of face strongly granulose, especially on the sides. Pronotum rufous brown, granulose, with an interrupted and rudimentary carina, hardly visible at all in the male; the area before the principal sulcus irregularly trilobate on the margins, the hind border rounded with a row of large black-marked tubercles. Abdomen greyish brown above, indistinctly varied with black, and carinated in the female. Pronotum and abdomen pale yellowish beneath, spotted with black, most strongly in the male. Tegmina rather narrow and pointed, longer than the abdomen, rufous-brown, with a longitudinal row of indistinct white dots adjacent to darker ones in the male, these being almost obsolete in the female. Wings as loug as the tegmina, brown subhyaline. Femora yellowish, hind femora banded above with brown and dotted with black on the sides; tibiæ and tarsi reddish.

Length 15–22 mm.; expanse of tegmina, 29–39 mm.

Bombay: Bandra.

Types in the British Museum.

192. **Chrotogonus robertsi,** sp. nov.

Uniform brownish grey, strongly tuberculate. Scutellum of the vertex slightly pointed in the male, obtusely rounded in the female; vertex and pronotum with an indistinct median carina, more visible in the male; sides of pronotum irregularly trilobate before the principal sulcus; hind border indistiuctly trilobate aud subrotund, lower border of the deflexed lobes concave in front, and produced and angulated behind. Abdomen smooth, with a double row of brown spots above; pronotum and abdomen pale beneath, with light brown spots. Tegmina grey, with a longitudinal row of pale black-marked tubercles, and traces of similar rows on the principal longitudinal nervures. Wings distinctly shorter than the tegmina, clear hyaline. Legs pale yellowish, terminal spines of the hind tarsi tipped with black.

Fig. 111.—*Chrotogonus robertsi.*

Length 16–19 mm.; expanse of tegmina, 27–31 mm.; of wings, 26–28 mm.

Baluchistan: Quetta.

Types in the British Museum.

193. **Chrotogonus concavus**, sp. nov.

Uniform reddish grey (sand-colour), hardly paler beneath, strongly granulose. Scutellum of the vertex depressed, obtusely pointed in front; median carina of head and pronotum nearly obsolete; sides of pronotum strongly tridentate before the principal sulcus, hind border obtusely rounded, with black marginal tubercles; deflexed lobes with the lower border yellowish, twice concave, and angulated behind. Tegmina about as long as the abdomen, tapering, rather pointed, with a median row of small pale dark-marked tubercles; wings two-fifths as long as the tegmina, hyaline. Legs yellowish, hind femora with black dots on the outer carinæ, terminal spines of the hind tibiæ tipped with black. Abdomen rather obscurely pointed with brown.

Length 24 mm.; expanse of tegmina, 28 mm.

BALUCHISTAN: Quetta.

Type in the British Museum.

194. **Chrotogonus trachypterus**, *Blanch.*

Ommexycha trachypterus, Blanchard, Ann. Soc. Ent. France, v, 1836, p. 618, pl. xxii, fig. 6.

Brown, rugose and tuberculate. Head short, broad, rugose; antennæ fulvous, ringed with black; eyes very prominent, brown, shining, occupying three-quarters the length of the head. Pronotum short, broad, with a great number of small crowded tubercles; seven lobes on the hind border; front and lateral borders not indented. Sternum yellowish, spotted with blackish. Tegmina rather shorter than the abdomen, brown, considerably humped, nervures and numerous tubercles very prominent; wings hyaline, nearly as long as the tegmina. Abdomen brown above, paler beneath, with brown spots. Four front legs short, slender, rugose, yellow, with brown spots. Hind legs short, femora as long as the abdomen, outer surface very rugose, with two black spots, one at the base and the other at the extremity; tibiæ with short pale spines.

Length 17–19 mm.; tegmina, 12 mm.; wings, 9 mm.; hind femur, 8·5 mm.

BOMBAY.

Type in the Paris Museum.

[Mr. Kirby suggests in a memorandum that this may be the female of *C. pallidus*.]

195. **Chrotogonus liaspis**, *Blanch.*

Ommexycha liaspis, Blanchard, Ann. Soc. Ent. France, v, 1836, p. 620, pl. xxii, fig. 8.

Brownish yellow, smooth. Head rather broad at the base, and pointed at the extremity; antennæ brownish, shading into black

towards the tip; eyes ovoid, dark brown. Pronotum greyish, smooth, slightly ridged in front, with three black tubercles on the hinder edge and some smaller ones beyond them; three small tubercles, and a black spot on the sides, and a yellowish-white marginal line from the front to the hind border. Sternum pale yellow, smooth, with ten black spots. Tegmina rather shorter than the abdomen, nervures scarcely visible, and only a single row of inconspicuous tubercles. Wings hyaline, half as long as the tegmina. Abdomen smooth, brown above, and yellow spotted with black beneath. Legs rather short, yellowish, with darker spots, and finely striated; hind femora broad and flattened, with some brownish spots on the outer surface; tibiæ smooth, with pointed spines.

Length 20–21 mm.; tegmina, 11·5 mm.; hind femur, 10 mm.

BOMBAY.

Type in the Paris Museum.

196. **Chrotogonus oxypterus**, *Blanch.*

Ommexycha oxypterum, Blanchard, Ann. Soc. Ent. France, v, 1836, p. 622, pl. xxii, fig. 9.

Yellowish brown, short, rugose, subapterous. Head reddish; antennæ yellow, with small black transverse streaks; eyes very large and prominent, covering the sides of the head. Pronotum short and broad, humped, with some small black dots in front; hind border hardly festooned, sides brown, with a black spot, and bordered by a white line extending to the lateral border of the head. Sternum spotted with black; tegmina only half as long as the abdomen; brownish yellow, with darker spots; wings obsolete. Abdomen yellow above, with small and rather indistinct transverse black lines; under surface spotted with black. Legs rather short and slender, yellow, with darker spots; hind femora with two brown spots; spines of hind tibiæ small.

Length 13–19 mm.

MADRAS: Malabar.

Types in the Paris Museum.

197. **Chrotogonus saussurei**, *Bol.*

Chrotogonus saussurei, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 39, 47, 494; id., Bol. Soc. Españ. iv, 1904, pp. 93, 104.
Chrotogonus oxypterus, Bolivar (*nec* Blanch.), Ann. Soc. Ent. France, lxv, 1902, p. 605.

Ferruginous brown, spotted with red; wings rudimentary. Head pointed, tuberculate, generally orange, with a pale oblique fascia on the front, and with four black spots behind, the outermost behind the eyes; fastigium subacute, concave; antennæ blackish towards the tips. Pronotum rugose, hind lobe with a few granules, and a short carinula on each side; hind border obtusely angulated, with pliciform tubercles; lateral lobes with

black granules, the outer margin pale, the hinder angle acute. Tegmina lanceolate, variable, but in the type extending to the middle of the hind femora, with brown or reddish spots adjoining the numerous small white tubercles on the principal nervures; wings rudimentary, brown. Legs varied with brown, and with grey pubescence; hind femora sparingly granulated, upper carina compressed; three black spots above, the middle one obliquely extended; lower carinæ spotted with black.

Length 14–22 mm.; tegmina, 5·8–8 mm.; hind femur, 7·5–10 mm.

MADRAS: Trichinopoly, Bellary.

Types in the collections of Brunner von Wattenwyl and Bolivar.

198. **Chrotogonus brachypterus**, *Bol.*

Chrotogonus brachypterus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 605; id., Bol. Soc. Españ. iv, 1904, pp. 95, 109.

Brown, pale below, spotted with black, wings rudimentary. Vertex about as long as broad, slightly produced before the eyes, and carinated between them; lower part of face with cruciform granulæ. Tegmina very short, the nervures only slightly curved, and the tip truncated.

Length 15–23 mm.; tegmina, 2–5 mm.; hind femur, 8 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

199. **Chrotogonus sordidus**, sp. n.

Brown, only slightly paler beneath, which renders the black spots inconspicuous. Scutellum of the vertex angulated in front, frontal ridge narrow between the antennæ, the median carinæ slightly diverging on the lower part of the face, and the lateral carinæ well marked; head finely granulose. Front of pronotum transversely ridged, otherwise with large longitudinal and transverse mostly oblong wrinkles, the hind border slightly rounded, the deflexed lobes almost rectangular behind. Tegmina lighter brown than the body, nearly as long as the hind femora, but much shorter than the abdomen, narrow, linear, with a central row of large black tubercles marked with white dots within, and numerous smaller black dots and specks on the longitudinal nervures. Wings black, narrow, less than half as long as the tegmina. Legs rather short, four front femora rather stout, hind femora but slightly thickened.

Length 22 mm.; tegmina, 13 mm.

BOMBAY.

The specimen is probably discoloured; and but for the comparatively stout legs, I should have referred it, with doubt, to *C. oxypterus*, Blanch.

Type in the British Museum.

Genus AULARCHES.

Aularches, Stål, Œfv. Vet.-Akad. Förh. xxx (4), 1873, p. 51.

Type, *Gryllus* (*Locusta*) *miliaris*, L.

Range. Indian Region.

Size large, body stout, pronotum tuberculate, wings large, coloured. Head large, smooth; scutellum of the vertex very short, triangular, contracting uninterruptedly into a narrow sulcated frontal ridge ceasing below the antennæ; lateral carinæ very distinct, running within the eyes, and slightly divergent to the extremity of the clypeus, which is broad and truncated. Antennæ rather long, placed between the eyes, and composed of a number of long joints. Pronotum strongly tuberculate above, with two large contiguous humps in front, cut by the three sulci, the last sulcus placed about the middle, the hinder area rugose and deeply pitted at the sides; deflexed lobes rounded behind. Tegmina long, moderately broad, subparallel-sided, obtusely rounded behind, with callous spots; wings membranous, opaque, as long as the tegmina, and moderately broad. Abdomen slightly compressed, legs long and slender. Hind femora unarmed, and only slightly thickened.

The forms below are regarded by some authors as varieties of one species.

Key to the Species.

1 (2)	Head pale	*miliaris*, L., p. 168.
2 (1)	Head black.	
3 (4)	Front humps of pronotum black	*punctatus*, Drury, p. 169.
4 (3)	Front humps of pronotum yellow	*scabiosæ*, F., p. 170.

200. Aularches miliaris, *L.*

Gryllus (*Locusta*) *miliaris*, Linnæus, Syst. Nat. (ed. x.) i, 1758, p. 432; Linnæus, Mus. Lud. Ulric. 1764, p. 142.

Acrydium verrucosum, De Geer, Mém. Ins. iii, 1773, p. 486, pl. xl, fig. 6.

Gryllus (*Locusta*) *scabiosus*, Stoll (*nec* Fabr.), Spectres, Saut. 1813, p. 18, pl. 76, fig. 24.

Gryllus (*Locusta*) *conspercus*, Stoll, op. cit. 1813, p. 40, pl. 226, fig. 85.

Aularches miliaris, Stål, Recens. Orth. i, 1873, p. 18.

Head yellowish, or more or less mottled with brown above; pronotum yellow on the sides, generally with at least the spines and hinder area black. Frontal lobe with two large rounded contiguous elevations in front, black, or rarely pale; the space between the sulci with several strong pointed conical tubercles on each side; the hinder lobe very rugose, deeply pitted, and rounded behind, with a row of short spines on the margin, not close together. Tegmina light brown, very thickly reticulated with yellow nervures, and with a variable number of large and small

callous yellow spots; wings purplish brown, darkest towards the base. Legs yellowish, slightly mottled with darker or veined with black; hind knees marked with black on the sides. Abdomen black, with narrow yellow incisions, and a row of yellow spots on the back before the incisions, and the apex yellow; on the under surface the transverse bands are small, but there are no yellow spots in addition.

Length 35–52 mm.; expanse of tegmina, 68–100 mm.

NEPAL; SIKKIM; MADRAS: Coonoor; CEYLON; JAVA.

201. Aularches punctatus, *Drury*.

Gryllus (*Locusta*) *punctatus*, Drury, Ill. Exot. Ent. ii, 1773, pl. xli, fig. 4.

Body almost entirely shining black above; a broad yellow band running across the face below the antennæ and across the sides of

Fig. 112.—*Aularches punctatus*.

the pronotum; abdomen more or less banded with yellow or reddish, at least towards the extremity and on the sides, and the sternum and abdomen beneath mostly red; abdomen and legs

black, hind femora sometimes yellowish; tegmina light brown or olive-brown, thickly reticulated with yellow, with numerous yellow callous spots; wings purplish brown, subhyaline, darkest towards the base. Tubercles of pronotum less prominent than in *A. miliaris*.

Length 42–60 mm.; expanse of tegmina, 64–110 mm.

TIBET; KASHMIR; NEPAL; UNITED PROVINCES: Garhwal; MALAY STATES; JAVA.

The immature insect has short yellow wings.

202. **Aularches scabiosæ**, *F.*

Gryllus scabiosæ, Fabricius, Ent. Syst. ii, 1793, p. 51.

Shining black, with a broad yellow band across the head and sides of the pronotum, as in the last species. Pronotum with the front, including the large rounded tubercles, yellow, and the hind border, which is not very strongly dentated, also yellow. Abdomen broadly banded with red both above and below, except sometimes on the basal half above. Tegmina brown or greenish, with numerous yellow callous spots. Wings purplish brown, subhyaline towards the extremity; sometimes with a few indistinct yellow spots.

Length 44–60 mm.; expanse of tegmina, 80–100 mm.

BENGAL: Orissa; BOMBAY; CEYLON; CAMBODIA.

Genus **PŒCILOCERUS.**

Pœkilocerus, Serville, Ann. Sci. Nat. xxii, 1831, p. 275; id., Ins. Orth. 1839, p. 595.

Pœcilocerus, Stål, Œfv. Vet.-Akad. Förh. xxx (4), 1873, p. 51.

TYPE, *Gryllus pictus*, F.

Range. Indian Region, Western Asia, North and East Africa.

Size large; body stout, subfusiform; wings opaque, coloured. Head and pronotum very slightly carinated, fastigium of the vertex convex, obtusely rounded in front, and distinctly sulcated, passing into the frontal ridge, which is sulcated throughout; lateral carinæ only slightly divergent; antennæ short and thick, with long joints. Pronotum gradually widened behind, the sulci well marked, the hind sulcus placed about the middle, the hinder lobe raised, and rounded behind; deflexed lobes narrowed below. Abdomen slightly carinated above. Tegmina and wings coloured, about as long as the abdomen. Legs rather stout, the four front tibiæ spined beneath at the extremity; hind femora slender, nearly as long as the abdomen, unarmed; hind tibiæ spined above, with nearly equal terminal spines above and below.

Key to the Species.

1 (2) Abdomen with red spots .... *tessellatus*, Bol., p. 171.
2 (1) Abdomen with no red spots.
3 (6) Antennæ not red at the base.
4 (5) Antennæ ringed with black and yellow. *pictus*, F., p. 172.
5 (4) Antennæ green .... *punctiventris*, Serv., p. 173.
6 (3) Antennæ red at base .... *ornatus*, Burm., p. 173.

203. **Pœcilocerus tessellatus**, *Bol.*

Pœcilocerus tessellatus, Bolivar, Bol. Soc. Españ. Hist. Nat. iv, 1904, pp. 432, 433.

Violet-brown, thickly tessellated with yellow; antennæ yellow, ringed with blue-black; head, pronotum, and abdomen regularly tessellated with small yellow callosities. Head above with an oblique yellow band on each side, and below the eyes a yellow band running through the lower border of the pronotum; fastigium transverse. Pronotum not constricted, subcylindrical, expanded behind, the sulci not strongly marked, and the hinder sulcus placed scarcely behind the middle; the metazona slightly carinated in the middle, and very narrowly bordered with yellow behind. Legs striped with blue-black.

Length (♀ nymph), 44 mm.; pronotum, 21·5 mm.; hind femur, 20 mm.

MADRAS: Bellary.

Type in the Paris Museum.

[The immature specimen upon which the following description is based, was treated by the author as a new species, but as it is probable that the insect is only the nymph of *P. pictus*, it seems undesirable to propose a new name for it.]

204. **Pœcilocerus** sp.

Blue-black, thickly tessellated with yellow, and spotted with red; antennæ ringed with black and yellow, narrowly towards the base, and broadly beyond; head, pronotum, and abdomen regularly tessellated with small yellow callosities. Head and pronotum with a very fine median carina; head with a diverging yellow band within each eye, extending to the front of the pronotum, and another below the eye extending over the lower border of the pronotum to the middle coxæ; fastigium broader than long. Pronotum gradually widened but not raised behind, with the sulci only slightly marked, with three red spots on each side arranged in a triangle, one between the two hinder sulci, and two on the hinder lobe; there is also a trace of another on each side behind the upper yellow band of the head. Abdomen

slightly carinated, with three rows of red spots, one on the carina, and the others lateral. Legs yellow, tessellated above and on the sides with blackish, hind femora also with black spots on the inside; hind tibiæ yellow, with black spines placed on black spots.

Length (nymph), 38 mm.

North India.

205. **Pœcilocerus pictus**, *F.*

Gryllus pictus, Fabricius, Syst. Ent. 1775, p. 289.
Pœkilocerus sonneratii, Serville, Ann. Sci. Nat. xxxii, 1831, p. 276.

Blue-black or greenish, with yellow markings and red wings. Antennæ blue-black, ringed with yellow beyond the basal third of

Fig. 113.—*Pœcilocerus pictus.*

their length. Head and pronotum with a slight median carina; head with a broad yellow band within each eye, running back on the pronotum to the middle sulcus, behind which are two broad

subinterrupted transverse yellow bands; the upper part of the frontal ridge is also yellow, and there are broad yellow diverging bands on each side of it; also a broad yellow band below each eye, extending over the lower part of the deflexed lobes of the pronotum. Pronotum impress-punctate, rounded behind, the hind sulcus placed just behind the middle. Tegmina green or olive, with the longitudinal and transverse nervures yellow, and the apex often reddish; wings brick-red, with red nervures, more or less subhyaline towards the tip. Abdomen yellow, with transverse blue-black bands. Legs yellow, the femora longitudinally striped with blue-black, and blue-black on the inner side nearly to the extremity; the four front tibiæ blotched with blue-black.

Length 43–61 mm.; expanse of tegmina, 68–100 mm.

Baluchistan: Quetta; Sind: Karachi; Madras, etc.

The specimen from Madras is very large and dark-coloured, but I cannot find any satisfactory character to separate it as a distinct species.

206. **Pœcilocerus punctiventris**, *Serv.*

Pœkilocerus punctiventris, Serville, Ins. Orth. 1839, p. 601.

Green, rather shining. Head smooth, with a yellow band beneath each eye, extending over the lower border of the deflexed lobes of the pronotum; scutellum of the vertex short, depressed, bordered with a yellow line extending obliquely backwards on the vertex; face with three yellow spots on each side, the faint carinæ slightly marked; scape of antennæ with a yellow spot beneath. Pronotum strongly granulated, with four spots placed in a square in front, and six others, of which the middle ones are the smallest, curving round the hind border. Pectus with four irregular spots in the middle, and three more on each side. Tegmina rather longer than the abdomen, opaque, green, thickly mottled with yellow; not distinctly expanded on the costa. Wings nearly as long as the tegmina, hyaline, stained with vermilion to beyond the middle, the apex clear, with brown nervures. Abdomen spotted with yellow on the carina above, and on the median line below, as well as on the sides. Legs green, front femora with two yellow spots, four front tibiæ spiny below towards the tips, and with three yellow spots above; hind femora with a row of yellow spots on the outer margin above and below; middle coxæ spotted with yellow.

Length 38–40 mm.

Bombay; Egypt.

Type in the Paris Museum.

207. **Pœcilocerus (?) ornatus**, *Burm.*

Pœcilocera ornata, Burmeister, Handb. Ent. ii, 1838, p. 624.

Front of the head raised and pointed; eyes very prominent; antennæ ringed with black and yellow, with the base red; body

black, spotted with yellow; pronotum saddle-shaped, with the hind margin humped; black, spotted with yellow, as also the abdomen, and everywhere coarsely punctured and granulated; tegmina green: legs red, femora yellowish above.

Length 20 mm.

INDIA (?).

Genus **CHLORIZEINA.**

Chlorizeina, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 130.

TYPE, *Chlorizeina unicolor*, Brunn.

Range. Burma.

Smooth, slender, subapterous. Fastigium of the vertex rather longer than the eye, sulcated; front very oblique, not sinuated. Antennæ filiform, half as long again as the head and pronotum together. Pronotum cylindrical, rounded behind, finely punctured, the sulci slightly marked, the hind sulcus placed beyond the middle. Tegmina and wings rudimentary. Metasternal lobes contiguous in the male, and slightly separated in the female. Hind femora slender, the genicular lobes slightly pointed; hind tibiæ hairy, with six or seven spines on the outer carina, besides the apical one. Anal segment of the male triangularly emarginate; supra-anal lamina pointed; tarsi in the male very slender, compressed, curved, and obtuse at the extremity; subgenital lamina of the male slightly compressed and hooked.

208. **Chlorizeina unicolor**, *Brunn.*

Chlorizeina unicolor, Brunner, Ann. Mus. Genova, xxxiii, 1893 p. 131, pl. v, fig. 51.

Uniform pale green. Tegmina in the male sometimes pointed, hardly extending beyond the third segment of the abdomen, and sometimes obtuse, extending to the eighth segment; in the female shorter than the third segment. Wings very short, hyaline. Hind femora beneath suffused with red, the genicular lobes partly black; hind tibiæ dull blue, tipped with black.

Length 27–32 mm.; pronotum, 6·2–6·8 mm.; tegmina, 7·5–11·5 mm.; hind femur, 15–15·5 mm.

BURMA: Palon, Bhamo.

Types in the Genoa Museum.

Genus **PYRGOMORPHA.**

Pyrgomorpha, Serville, Ins. Orth. 1839, p. 583.

TYPE, *Acridium conicum*, Oliv.

Range. Cosmopolitan.

Size small, body slender, more or less granulated. Head conical, fastigium of the vertex projecting considerably before the eyes;

antennæ inserted between and close to the eyes, short, narrowly ensiform. Pronotum rounded behind, carinated more or less continuously. Tegmina long and narrow, or abbreviated, more or less pointed at the extremity; wings hyaline, or red at the base. Metasternal foveolæ separated by a transverse space; abdomen compressed, generally with transverse dark band. Legs long and slender.

Key to the Species.

1	(2) Lateral carinæ of pronotum obsolete.	*brachycera*, sp. n., p. 175.
2	(1) Lateral carinæ of pronotum well-marked.	
3	(4) Tegmina not reaching apex of abdomen in ♀	*bispinosa*, Walk., p. 176.
4	(3) Tegmina extending beyond apex of abdomen in ♀	*conica*, Oliv., p. 175.

209. **Pyrgomorpha conica**, *Oliv.*

Acrydium conicum, Olivier, Encycl. Méth., Ins. vi, 1791, p. 230.
Truxalis grylloides, Latreille, Hist. Nat. Crust. Ins. xii, 1804, p. 148.
Truxalis rosea, Charpentier, Hor. Soc. Ent. Ross. 1825, p. 128, pl. iii, fig. 8.
Truxalis linearis, Charpentier, op. cit. 1825, p. 129, pl. iii, fig. 2.
Truxalis rhodoptila, Herrich-Schäffer, Panzer, Faun. Ins. Germ. clvii, 1838, pl. 16.
Opomala cingulata, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 517.

Grey or green, sometimes with a whitish line running below the eyes, and bordering the deflexed lobes beneath. Fastigium of the vertex longer than broad; antennæ stout, blackish, not longer than the head and pronotum together; median carina distinct from the fastigium over the head and pronotum; lateral carinæ generally incomplete. Surface of pronotum finely granulose, hind border rounded, hind sulcus placed much behind the middle. Tegmina green or grey; wings hyaline, generally pink towards the base and along the nervures. Hind tibiæ above with no outer apical spine. Metasternal lobes distant in the female; in the male produced behind the foveolæ, and contiguous; abdomen spotted with black above.

Length 15–24 mm.; pronotum, 3–5 mm.; tegmina, 13–22 mm.

S. Europe; N. & W. Africa; W. Asia.

210. **Pyrgomorpha brachycera**, sp. nov.

Testaceous, evidently green during life. Fastigium of the vertex as long as the eye, equally broad nearly to the extremity,

where it is very obtusely rounded; front long, hardly sinuated, vertex and pronotum with a well-marked median carina, the lateral carinæ obsolete; antennæ shorter than the head and pronotum together, stout, pointed at the tip, and much broadened and flattened at the base above; a row of large granules runs behind each eye to the back of the head, above which (but not contiguous) is a trace of a pale line, and the deflexed lobes are very narrowly edged with pale below. Tegmina testaceous (green in life ?), rather long, narrow, and pointed; wings shorter than the tegmina, red, with the costa and hind margin hyaline. Abdomen with black spots above towards the base. Legs long and slender.

Fig. 114.—*Pyrgomorpha brachycera.*

Length 21 mm.; expanse of tegmina, 38 mm.

BENGAL.

Type in the British Museum.

211. **Pyrgomorpha bispinosa**, *Walk.*

Pyrgomorpha bispinosa, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 499.
Pyrgomorpha indica, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 66.

Green, or grey, often varied with brown. Front sinuated, very oblique; head finely granulose, with a pale oblique line behind the eyes; vertex narrow, oblong, obtusely rounded in front. Pronotum sparingly granulose; carinæ before the middle distinct, inflexed, replaced behind by rows of granules, median carina continuous; deflexed lobes with the lower margin bisinuate, with a broad pale border, granulose, with the hinder angle obliquely truncated, and near it a spine. Tegmina extending to the tip of the hind femora, obtuse at the extremity; wings rather shorter, with the inner part of the disk rosy. Legs varied with brown, hind femora usually with two obsolete brown bands, and the inner surface more or less brown; hind tibiæ grey or green. Abdomen brown on the back.

Length 15–21 mm.; tegmina, 11–15 mm.

MADRAS: Madura, Kodaikanal.

Type of *bispinosa* in the British Museum; type of *indica* in the collections of Pantel and Bolivar.

Genus ZARYTES.

Zarytes, Bolivar, Bol. Soc. Españ. Hist. Nat. iv, 1904, p. 456; id., Gen. Ins., Orth. Acrid. Pyrg. 1909, pp. 27, 32.

TYPE, *Pyrgomorpha squalina*, Bol.

Range. India.

Long and slender, wings rudimentary. Head conical; fastigium of the vertex slightly contracted, rounded in front, not longer than the eye, and carinated above; front very oblique, frontal ridge compressed between the antennæ, and sulcated; sides of face with an oblique row of granules. Antennæ rather long and thick, triquetral at the base, brown, inserted between the eyes, which are oblong. Pronotum somewhat compressed, slightly emarginate dorsally in front, rounded behind; tricarinate, with the lateral carinæ distinctly arched before the middle, the typical sulcus placed behind the middle; deflexed lobes scarcely higher behind, traversed within by an oblique branch from the carinæ of the metazona; the lower margin straight, entire, rectangular behind, the hind border somewhat excised. Tegmina lanceolate, only slightly longer than the intermediate femora, overlapping on the inner edge; wings very short. Prosternum slightly tumid in front; metasternum with a trapezoidal space between the lobes, not twice as broad as the lobes. Legs compressed, front femora of male slightly thickened, hind tibiæ with no outer terminal spine. Abdomen compressed, obtusely carinated above valves of the ovipositor sinuated.

212. Zarytes squalina, *Bol.*

Pyrgomorpha squalina, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 422, 423, 495; id., Ann. Soc. Ent. France, lxx, 1902, p. 606.

Reddish, green, or light brown, with rudimentary wings. Front oblique, bisinuate; fastigium prominent, with the median carina continuous; antennæ ensiform or triquetral at the base, cylindrical beyond, inserted scarcely before the eyes, and black or reddish; head with one row of tubercles behind each eye. Pronotum subcylindrical, with the lateral carinæ almost parallel; the lateral lobes rugose, hardly sinuated, but rectangular behind, the lower margin narrowly sinuated; yellow, or with a black (or in the green specimens, reddish) lateral band on the sides of the pronotum, passing over the coxæ and the lower half of the hind femora; the outer or lower half of the lateral lobes, as well as the meso- and meta-thoracic pleuræ are pale. Tegmina narrow, lanceolate, hardly extending to the middle of the abdomen. Prosternum angulated in the middle. Hind femora slender; hind tibiæ with no outer terminal spine.

Length 18–30 mm.; tegmina, 4·5–7·5 mm.; hind femur, 8·5–11 mm.

MADRAS: Madura.

Genus ANARCHITA.

Anarchita, Bolivar, Bol. Soc. Españ. Hist. Nat. iv, 1904, p. 459; id., Gen. Ins., Orth. Acrid. Pyrg. 1909, pp. 27, 33.

TYPE, *Pyrgomorpha aptera,* Bol.

Range. S. India.

Slender, subfusiform, apterous. Head conical, longer than the pronotum, horizontally produced; fastigium horizontal, as long as the eye, tempora separated in front only by a short suture; front very oblique, bisinuate, costal ridge finely sulcated, but much compressed and entire between the antennæ. Antennæ short, filiform, triquetral, but not dilated at the base, and inserted between the eyes; basal joints 3–6 subquadrate and subdilated in the male, in the female subtransverse and slightly expanded. Eyes oblong; cheeks with one oblique row of granules. Pronotum short, sinuated before and behind, the median carina slightly indicated, and interrupted by the principal sulcus much beyond the middle, the intermediate sulcus interrupted and curved forwards; the lateral carinæ of the prozona parallel, and slightly curved inwards, those of the metazona diverging in front, and obliquely traversing the lateral lobes; deflexed lobes slightly expanded behind, the lower margin bisinuate, the hinder angle obtuse. Legs very short; four front femora ridged, the intermediate ones scarcely extending to the base of the hind femora; the hind femora shorter than the abdomen, with the externo-median area ridged, and the lower outer area slightly expanded; hind tibiæ with rounded spines, and no outer terminal spine; tarsi very short. Prosternum tumid in front; mesosternal lobes separated by a curved trapezoidal space, broader behind; metasternal foveolæ separated by a transverse space. Abdomen longitudinally striated; valves of the ovipositor sinuated.

213. Anarchita aptera, *Bol.*

Pyrgomorpha aptera, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 607.

Green or grey, granulate-punctate. Front oblique, head pointed, with an oblique line of pale granules behind each eye; fastigium carinulated above, roundly truncate in front. Antennæ reddish, brown towards the tip. Pronotum slightly granulose above, sinuated in the middle behind, with the hinder lobe very short, the lateral carinæ of the prozona rather indistinct, inflexed in the middle, those of the metazona very oblique, often red; the deflexed lobes granulated, pale externally, sinuated, the hinder angle obtuse, excavated. Tegmina and wings absent. Prosternum with the front margin very slightly reflexed, and indistinctly angulated in the middle. Legs concolorous. Abdomen multi-

carinate longitudinally above in the female, with the hind borders of the segments smooth.

Length 16–23 mm.; hind femur, 6·5–8·5 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar,

Genus TAGASTA.

Tagasta, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, p. 112.
Mestra, Stål (*nec* Hübner), Œfv. Vet.-Akad. Förh. xxxiv (10), 1877, p. 52.

TYPE, *Mestra hoplosterna*, Stål.

Range. Oriental Region.

Body subfusiform, slightly compressed, pubescent above. Head conical, shorter than the pronotum, or of equal length; tempora widened in front, only separated by a short suture; front very oblique, frontal ridge much flattened, hardly sulcated, shortly compressed between the antennæ; the latter concolorous, filiform, and inserted between the eyes, with joints about three times as long as broad, the basal joints slightly flattened, and the tip extending to the hind border of the pronotum; eyes rounded; ocelli distinct, cheeks granulated. Pronotum pubescent, roundly truncate in front, obtusely angulated or rounded behind, with the median carina very slightly indicated, or obsolete, and the lateral carinæ obsolete; the sulci slightly marked, and the hind sulcus placed behind the middle; the prozona considerably longer than the metazona; the deflexed lobes distinctly higher behind, the lower margin oblique, subsinuate, bordered with whitish, the anal angle obtuse, nearly rectangular. Tegmina not or scarcely longer than the hind femora, with the costal area considerably expanded near the base. Wings distinctly shorter than the tegmina, red or hyaline. Legs long and slender; front femora distinctly thickened in the male, hind femora compressed, the outer area with radiating ridges; hind tibiæ with rounded spines, and with an outer apical spine above. Prosternum strumose, or armed with a short tooth; mesosternal lobes separated by a longer or shorter space; metasternal foveolæ separated by a transverse space. Valves of the ovipositor sinuated.

Key to the Species.

Tegmina with a black spot at the base, containing an orange one	*notata*, Brunn.
Tegmina unspotted at the base	*indica*, Bol.

214. **Tagasta notata**, *Brunn.*

Mestra notata, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 130, pl. v, fig. 50.

Fastigium of the vertex rather pointed. Pronotum uniformly

impress-punctate. Tegmina in both sexes longer than the abdomen, obtusely rounded at the tip, [green?] with a black spot marked with an orange one near the base. Wings narrow, hyaline, suffused with rosy violet at the base. Hind femora with the upper and lower outer areas equally broad; hind tibiæ red. Cerci of the male long, slender, curved, and obtuse at the ends.

Length 31–42 mm.; tegmina, 20·5–30 mm.

Burma: Karen Hills.

Types in the Genoa Museum.

215. Tagasta indica, *Bol.*

Tagasta indica, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, pp. 112, 113.

Olivaceous, very finely rugose-punctate. Fastigium of the vertex equilaterally triangular, the sides slightly waved before the tip, and not longer than the eye; antennæ inserted near the eye, joints long, closely punctured; cheeks with a row of large yellow granules behind each eye. Pronotum rounded in front, and obtusely angulated behind, median carina almost, and lateral carinæ wholly obsolete; deflexed lobes with the lower margin very narrowly bordered with yellow, and slightly produced above the coxæ. Tegmina nearly as long as the hind femora, distinctly narrowed towards the extremity, with the tip narrowly obtuse; olive, with a brown spot at the base. Wings one-fifth shorter than the tegmina, deep rose-colour, with the costal area sub-hyaline. Prosternum strumous, obtusely angulated, and very shortly produced. Hind tibiæ dull greenish.

Length 23–27 mm.; tegmina, 15–19 mm.

Bhutan; Maria Basti.

Type in the collection of I. Bolivar.

Genus ATRACTOMORPHA.

Atractomorpha, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 474.

Type, *Truxalis crenulatus,* F.

Range. Ethiopian, Oriental, and Australian Regions.

Body long and slender, compressed. Head conical, rarely longer than the pronotum; fastigium about as long as the eye; front very oblique, frontal ridge compressed between the antennæ, and usually sulcated to the extremity. Antennæ short, triquetral, subfiliform, very slightly depressed and widened at the base in the female, and inserted at the tip of the fastigium; eyes oblong; cheeks with a row of granules extending to the middle coxæ. Pronotum subemarginate in front, and obtusely angulated behind,

very slightly tricarinate, the hind sulcus placed behind the middle; the deflexed lobes almost perpendicular, broader behind, with the hind margin arcuately incised, and the hinder angle more or less produced behind. Tegmina rather pointed, with the costal area slightly expanded towards the base. Wings nearly as long as the tegmina, pointed at the tip, hyaline, often red at the base. Legs slender, hind femora with the externo-median area somewhat oblique and distinctly broader than the lower area; knees shortly bilobate; hind tibiæ smooth, with pointed spines, and an outer terminal spine. Prosternum with an obliquely truncated tubercle in the middle, or submarginate, and concave in front; metasternal lobes behind the foveolæ separated by a transverse space. Abdomen slightly compressed, with the last dorsal segment angularly excised; supra-anal lamina trigonate, cerci short, conical; valves of the ovipositor sinuated, and slightly crenulated.

Key to the Species.

1	(10)	Tegmina pointed, but not much longer than the wings.	
2	(9)	Hind margin of the lateral lobes of the pronotum deeply concave.	
3	(8)	Tegmina extending for one-fourth of their length beyond the hind femora.	
4	(7)	Frontal ridge sulcated, or shortly compressed and arched between the antennæ.	
5	(6)	Tegmina green; wings red at base	*crenulata*, F., p. 181.
6	(5)	Tegmina brown, mottled with blackish; wings hyaline......	*scabra*, Thb., p. 182.
7	(4)	Frontal ridge between the antennæ not sulcated; very shortly at tip of fastigium	*burri*, Bol., p. 183.
8	(3)	Tegmina extending for one-third of their length beyond the hind femora	*psittacina*, de Haan, p. 182.
9	(2)	Hind margin of lateral lobes obtusely angulated	*himalayica*, Bol., p. 183.
10	(1)	Tegmina very long and pointed ..	*blanchardi*, sp. n., p. 184.

216. **Atractomorpha crenulata**, *F.*

Truxalis crenulatus, Fabricius, Ent. Syst. ii, 1793, p. 28.
Atractomorpha crenulata, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 475.
Atractomorpha crenulata, var. *prasina*, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, pp. 197, 201.
Acridium psittacinum, De Haan, pt., Temminck, Verhandel., Orth. 1842, p. 149, pl. xxiii, fig. 1 (*nec* p. 146).

Green, pubescent. Antennæ rather short and stout, separated

from the ocelli by a space much narrower than the width of the antennæ; front granulose; fastigium of the vertex about as long as the oval eyes, obtusely pointed, and narrowly carinated in front. Pronotum punctured and sparingly granulated, subtruncated in front, and obtusely angulated behind; the deflexed lobes broader behind, and concave on the hind border, the lower hinder angle rather produced; head and pronotum with the sides slightly sloping, crenulated behind the eyes, the crenulation often pale or pink; prosternum with an obtusely rounded tubercle. Tegmina pointed, extending for one-fourth of their length beyond the hind femora; wings pointed, rather shorter than the tegmina, about twice as long as broad, hyaline, with the base and nervures rosy. Abdomen smooth, rosy. Legs long and slender.

Length 16–26 mm.; tegmina, 15–20 mm.

BENGAL; MADRAS: Trichinopoli.

217. **Atractomorpha scabra**, *Thunb.*

Truxalis scaber, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 266.
Truxalis porrecta, Walker, Ann. Mag. Nat. Hist. (3) iv, 1859, p. 222.
Atractomorpha consobrina, Saussure, Ann. Soc. Ent. France, (4) i, 1861, p. 475.

Rather smaller and more slender than the last species, with the prosternal tubercle broader and more or less bifid or bidentate; the colour is generally brown, tinged with rosy, rarely greenish, often mottled with blackish; the tegmina extend for about one-fourth their length beyond the hind femora, and the wings are iridescent, hyaline, rarely tinged with rosy.

Length 14–24 mm.; expanse of tegmina, 40–43 mm.

CEYLON.

218. **Atractomorpha psittacina**, *de Haan.*

Acridium (Truxalis) psittacinum, De Haan, Temminck, Verhandel., Orth. 1842, p. 146.
Acridium crenulatum, De Haan (*nec* Fabr.), op. cit. 1842, pl. xxiii, fig. 2.

Green or reddish; antennæ placed much before the eyes; fastigium of the vertex twice as long as broad, subparalled-sided, obtusely rounded in front; pronotum rather shorter than the head, nearly smooth, very obtusely angulated behind, the carinæ distinct, lateral lobes with a reddish crenulated line, the hinder angle acute; prosternal tubercle conical, truncated at the tip; mesosternal lobes approximating behind; tegmina very long and pointed; wings hyaline, rosy towards the base.

Length 24–36 mm.; pronotum, 4·5–7·5 mm.; antennæ, 7·5 mm. tegmina, 21–31 mm.; hind femur, 13–14 mm.

ASSAM: Mangaldai; CHINA; JAVA.

219. **Atractomorpha burri**, *Bol.*

Atractomorpha burri, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, pp. 197, 203.

Rather stout, subferruginous. Fastigium almost triangular, about as long as the eye, roundly angulate in front, the margins crenulated in the female. Antennæ separated from the ocelli by a rather narrower space than the width of the scape, short, slightly depressed at the base, with the third joint not longer than the first. Front very sloping, the carina distinctly granulated, and with four whitish tubercles towards the tip between the carinæ; the costal ridge smooth, slightly raised, rather compressed between the ocelli and the end of the fastigium, the margins approximate, and only very shortly sulcated at the tip. Pronotum rather smooth above, slightly sinuated in front and obtusely angulated behind, the lateral carinæ arched in front and marked with granules; the deflexed lobes with scattered whitish granules, the lower margin coarsely granulated, but not sinuated, the hind margin strongly sinuated, with the hinder angle acute, but blunt at the tip. Pronotum with a transverse tridentate tubercle in the female; mesosternal space transverse, distinctly expanded in front. Tegmina extending for one-fourth of their length beyond the femora, pointed at the tip, and narrowly bordered with red; wings rather shorter than the tegmina, hyaline, with the disk rosy. Hind femora with the inner border obtusely crenulated.

Length 17–25 mm.; tegmina, 15–25 mm.

ASSAM: Cherrapunji, Khasi Hills.

Types in the Oxford Museum.

220. **Atractomorpha himalayica**, *Bol.*

Atractomorpha himalayica, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, pp. 198, 204.

Green or olive, rather stout. Fastigium rather broad, distinctly narrowed in front, where it is obtusely angulated, and rather longer than the eye; head with a lateral row of red granules. Antennæ concolorous, rather short, not extending to the tip of the labrum in the female, separated from the ocelli by less than the width of the scape. Pronotum slightly sinuated in front, and obtusely angulated behind, the lateral carinæ arched in the middle before the hinder sulcus, the disk very slightly tectiform; the deflexed lobes distinctly higher behind, with the lower margin slightly arched, reddish white, incrassated and granulated, the hinder margin sinuated, obtusely angulated, the lower part vertical, the hinder angle acute, but not produced backwards. Tegmina green, rather broad, pointed at the tips, extending for one-fourth of their length beyond the hind femora. Wings hyaline, stained with rosy at the base and along the nervures.

Prosternum with the tubercle broad, transversely truncated at the extremity, slightly arched; the mesosternal space transverse, half as broad again as long, and distinctly expanded in front. Abdomen dark red above. Legs long, slender, green.

Length 34 mm.; tegmina, 28-30 mm.

Sikkim: Kurseong; Tibet.

Type in the collection of I. Bolivar.

21. **Atractomorpha blanchardi**, sp. nov.

Rather long, olive-coloured. Fastigium triangular, narrowly rounded in front, very slightly sulcated, not more than half as long again as broad and about as long as the eye. Antennæ rather long, with long joints, the basal joints pale, the inner side blue, and the outer side red. Eyes less than twice as long as broad, the borders curved, and truncated behind. Frontal ridge slightly sinuated, regularly granulated, and sulcated throughout; cheeks with small irregular pale granules on a yellow line. Pronotum pale above, granulated, impress-punctate on the hinder area, slightly sinuated in front and obtusely angulated and slightly excavated behind; the carinæ indicated by granules, and the sulci distinct; the deflexed lobes somewhat expanded behind, the lower margin slightly sinuated and finely granulated, the hind border broadly concave, but the hinder angle not produced backwards: a well-marked smooth space behind the hinder sulcus. Tegmina very long and pointed, passing the hind femora by one-third of their length; wings rather shorter than the tegmina, hyaline, with the disk rosy. Legs slender, hind femora with the lower outer area pale. Prosternum with a slightly transverse tubercle, emarginate at the tip; mesosternal lobes separated by a transverse rectangular space.

Length 34 mm.: tegmina, 29 mm.

Sind: Karachi.

Type in the Paris Museum.

Genus ORTHACRIS.

Orthacris, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 24, 439, 496.

Type, *Orthacris filiformis*, Bol.

Range. India, Ceylon.

Body slender, apterous. Head conical, fastigium horizontally produced before the eyes, vertex carinate, tempora very short, with a short suture in front; front very oblique, not sinuated, costal ridge compressed between the antennæ, and sulcated throughout, lateral carinæ distinct, but interrupted; antennæ filiform, inserted between the eyes, joints 3 and 4 triquetral; eyes short, oblong, with a row of granules behind. Pronotum pubescent, not carinated, hardly expanded behind, the hinder sulcus placed at one-fourth of its length, the metazona very short;

the deflexed lobes rounded, equally high before and behind and the lower margin more or less thickened. Legs short; four front femora slender, rather compressed, the middle ones extending to the extremity of the hind coxæ; hind tibiæ pubescent at the base, with rather pointed spines towards the tip; outer terminal spine present or absent. Prosternum with a short pointed tubercle; sternal lamina long; mesosternal lobes rounded within, subcontiguous, or separated by a very narrow space. Supra-anal lamina lanceolate; cerci curved at the tip in the male, straight and very short in the female; infra-genital lamina in the male hooked and slightly produced at the tip. Valves of the ovipositor sinuated.

Key to the Species.

1	(8)	Hind tibiæ with a short outer terminal spine; vertex rather broad.	
2	(7)	Abdominal tympanum present.	
3	(4)	Body with red markings	*ruficornis*, Bol., p. 186.
4	(3)	Body with yellow markings.	
5	(6)	Deflexed lobes of pronotum with small scattered yellow tubercles ..	*filiformis*, Bol., p. 185.
6	(5)	Deflexed lobes of pronotum with numerous large yellow tubercles ..	*maindroni*, Bol., p. 185.
7	(2)	Abdominal tympanum absent	*elegans*, Bol., p. 186.
8	(1)	Hind tibiæ with no outer apical spine.	
9	(10)	Abdominal tympanum distinct	*simulans*, Bol., p. 188.
10	(9)	Abdominal tympanum indistinct	*acuticeps*, Bol., p. 187.

222. **Orthacris filiformis**, *Bol.*

Orthacris filiformis, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 439, 496, pl. ii, fig. 11.

Green, punctured, with a yellow band, bordered above with black, running from the eyes across the lower margins of the pronotum. Pronotum slightly emarginate behind, the deflexed lobes with small scattered yellow tubercles. Legs with greyish hairs; hind femora in the male nearly as long as the abdomen; much shorter in the female. Supra-anal lamina of the male compressed behind; apical half of the cerci filiform, and curved inwards.

Length 18–24 mm.

Ceylon.

Type in the collection of Brunner von Wattenwyl.

223. **Orthacris maindroni**, *Bol.*

Orthacris maindroni, Bolivar, Bol. Soc. Españ. Hist. Nat. v, 1905, p. 278.

Straw-coloured, probably greenish in life. Body above coarsely punctured, with a broad yellow band set with yellow granules

running behind the eyes, as far as the middle coxæ; fastigium rather broad, moderately prominent before the eyes, obtusely carinated in the middle and obtuse at the tip; eyes marked with curved black parallel lines. Pronotum slightly sinuated before and behind; the deflexed lobes with numerous large yellow irregular granules, the lower margin as well as the front and hind angles yellow. An abdominal tympanum present; prosternal tubercle short and conical; mesosternal space X-shaped, very narrow. Hind tibiæ with a brown spot at the tip on the inside, and a very short terminal spine on the outer margin. Abdomen with a narrow lateral chestnut line granulated with whitish.

Length 27 mm.

MADRAS: Coromandel Coast.

Type in the collection of M. Maindron.

224. **Orthacris ruficornis**, *Bol.*

Orthacris ruficornis, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 608.

Long, finely punctured, olivaceous green, or red above, with greyish hair beneath. Fastigium rather broad, subtransverse in the female, obtusely carinated above, and rounded in front; antennæ red, subtriquetral at the base. Pronotum subcylindrical, expanded behind in the female, truncated in the middle or slightly sinuated on the hind margin; a pale olive band (sometimes obsolete) running behind the eyes as far as the hind coxæ, bordered within by a granulose red band, the outer margin sinuated. Pectus rather long, separated by a distinctly narrower space from the mesosternal lobe in both sexes. Front femora thickened in the male; hind tibiæ with an outer apical spine. Abdomen furnished with a large tympanum; the last dorsal segment slightly emarginate in the middle, with the lobes produced; supra-anal lamina lanceolate, sulcated at the tip; cerci very short, triangular, not incurved at the tip, much shorter than the supra-anal lamina; subgenital lamina compressed.

Length 17–24 mm.

MADRAS: Kodaikanal.

Types in the collections of Pantel and Bolivar.

225. **Orthacris elegans**, *Bol.*

Orthacris elegans, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 608, 609.

Rather narrow, coarsely punctured, dead-leaf colour. Front oblique, slightly sinuated, eyes prominent; vertex slightly carinated in the middle; fastigium triangular before the eyes, equal-sided, roundly truncate in front; antennæ ringed with green and red. Pronotum cylindrical, rounded in front, hind margin truncated and

very slightly excised in the middle; the hind lobe very short, the deflexed lobes crossed by a pale stripe running from behind the eye to the hind coxæ, broken into three spots on the pleura and bordered on the inner side by a green stripe enclosing yellow tubercles, the outer margin sinuated before the middle, and behind the middle coalescing with the hind margin. Legs green, femora more or less bordered with red, the hind knees black on the inside and marked outside with red and black; hind tibiæ tipped with black beneath and with a small outer apical spine. Pectus narrow, mesosternal lobes separated by a rather narrower space. Tympanum absent; supra-anal lamina equilaterally triangular in the female.

Length 23 mm.

MADRAS: Madura.

226. **Orthacris acuticeps**, *Bol.*

Orthacris acuticeps, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 608, 610.

Very long and narrow, finely rugose, and closely punctured; olive-green, with a yellow stripe running from the base of the antennæ below the eyes and along the lower borders of the pronotum to the hind coxæ; in this are a few red tubercles, and above it, on the pronotum, is a broad green stripe with scattered white tubercles, followed by a white line occupying the place of the obsolete lateral carinæ; legs and under surface with grey hairs. Head pointed in front, vertex obtusely carinated, pointed in the male and rounded in the female; antennæ subtriquetral at the base, the joints pale at the tips. Pronotum subcylindrical, truncate behind, the lateral margins broadly spotted with red and yellow and with a few yellow tubercles. Meso- and meta-notum with yellow lateral bands; prosternum with a small conical tooth; pectus narrow, expanded behind; mesosternal lobes almost contiguous in the male and separated by a very narrow space in the female. Front femora distinctly thickened, hind femora below spotted with brown, with the lower outer carina yellow; hind tibiæ with the outer apical spine obsolete. Abdomen reddish, with black and white lateral lines; abdominal tympanum very small; the last dorsal segment in the male roundly emarginate in the middle, forming triangular lobes; supra-anal lamina lanceolate, obtusely carinated, not longer than the cerci; the latter compressed, pointed and incurved at the tips; subgenital lamina large, somewhat compressed, carinated behind.

Length 18–24 mm.

MADRAS: Kodaikanal, Madura.

Types in the collections of Pantel and Bolivar.

227. **Orthacris simulans**, *Bol.*

Orthacris simulans, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 608, 611.

Closely allied to the last species, but with a large abdominal tympanum. The male has the side of the head and thorax and the lateral lobes of the pronotum dull reddish, and there are a few white tubercles on the head. The last segment of the abdomen in the male is deeply sinuated, with the two lobes turning outwards, the supra-anal lamina carinated in the middle, and the cerci incurved at the tip.

Length 19–26 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

Genus **COLEMANIA.**

Colemania, Bolivar, Bol. Soc. Españ. Hist. Nat. x, 1910, p. 319.

TYPE, *Colemania sphenarioides*, Bol.

Range. India.

Body long, subcylindrical, fusiform in the male, and inflated in the middle. Fastigium of the vertex produced beyond the frontal ridge, longer than the eye, front sloping, slightly sinuated; antennæ 19-jointed, tapering from the third joint to the tip; frontal ridge sulcated, compressed at the base, obsolete before the mouth, lateral carinæ slightly diverging, genæ with a slightly marked row of granules; eyes small, longer than broad, truncated behind; ocelli visible, the middle one between the eyes, and the lateral ocelli placed before the eyes. Pronotum conical in the male, cylindrical in the female, the two anterior sulci obliterated, the last continuous and placed much beyond the middle; the lateral lobes long, with the margins entire, the front margin oblique, the lower one straight, indistinctly sinuated behind. Tegmina very narrow, longer than the pronotum; wings obsolete. Prosternum acutely spined; mesosternal lobes long, in the male truncated and contiguous behind, in the female expanded in front and rounded behind; metasternal foveolæ nearer together in the male than in the female. Legs short, front femora thickened in the male; hind femora slender, with the outer area narrow, with rather indistinct pinnate rugæ, the genicular lobes angulately produced; hind tibiæ slender, the apical third expanded, and smooth above, with nine outer and eleven inner spines, and apical spines on both sides; hind tarsi slender, the first joint twice as long as the second. Abdomen cylindrical, sub-clavate at the tip; last dorsal segment of the male transverse, trisinuated behind, supra-anal lamina forming a long triangle, longer than the cerci, sulcated and pointed; in the female nearly equilateral; cerci short, curved, subulate at the tips in the male, short and straight in the female; subgenital lamina compressed, subcarinate behind; valves of the ovipositor short, sinuate.

228. **Colemania sphenarioides.**

Colemania sphenarioides, Bolivar, Bol. Soc. Españ. Hist. Nat. x, 1910, p. 320; Coleman, J. Bombay Soc. xx, 1911, p. 879; H. Maxwell Lefroy, J. Bombay Soc. xix, 1910, p. 1007.

Straw-coloured or luteous. Head with a broad red and blue band running behind the eyes to the front of the pronotum, front red and blue, vertex with three blue lines, one median, the others lateral; antennæ blue-black, with a pale streak below and the basal segments pale. Pronotum reddish in the middle above, bordered by yellow bands edged within with black lines; the deflexed lobes banded with black, red and yellow; the meso- and meta-notum much smaller in the male. Tegmina extending to the end of the first segments of the abdomen, reddish, with pale nervures. Legs pale, hind femora and cerci striped with yellow; hind tibiæ reddish, often pale at the base, spines tipped with black. Abdomen pale above, the sides banded with brown and grey, the first segment furnished with a tympanum.

Length 31–40 mm.

Madras: Mysore, Madras, Bellary.

This species has recently been recorded as very destructive to cholam (*Andropogon sorghum*) in various parts of India.

Genus **TRIGONOPTERYX.**

Trigonopteryx, Charpentier, Orthopt. 1841, pl. v.

Type, *Trigonopteryx punctata*, Charp.

Range. Oriental Region.

Body long, much compressed. Head conical, compressed in front, vertex ascending, fastigium sinuated on the sides, and angulated in front, tempora narrow, separated by a very narrow suture; front oblique, sinuated, the frontal ridge between the antennæ and the tip of the antennæ raised, the margins separated, forming a pyriform foveola, obsolete before the ocelli; antennæ rather long, triquetral, ensiform, externally dentated, inserted near the eyes, the apical joint pubescent; eyes oblong, slightly sinuated, no lateral facial carinæ. Pronotum compressed, back narrow, parallel-sided, rounded and slightly sinuated in front, behind obtusely angulated, but not produced; the typical sulcus indistinct, placed rather beyond the middle; the deflexed lobes perpendicular, but with obtuse carinæ, trapezoidal, considerably raised behind, with the inner margin straight, the hinder margin somewhat sinuated, and the hinder angle acute. Tegmina long, extending much beyond the hind femora, the anal area narrow, the front area sinuated before the extremity, the anal nervure straight. Legs compressed; front femora short, the intermediate femora passing the extremity of the coxæ, the hind femora compressed, with the externo-median area well developed; hind tibiæ slender, with an outer apical spine; tarsi very short. Prosternum

with a short rounded tooth in the middle, sternal lamina very long, in front obtusely angulated; the mesosternal lobes broadly rounded on the inner side, with the intervening space much narrower. Supra-anal lamina in the female long, triangular, sulcated; cerci conical, very short; valves of the ovipositor compressed, sinuated.

229. **Trigonopteryx punctata**, *Charp.*

Trigonopteryx punctata, Charpentier, Orthopt. 1841, pl. v.

Grey, rugose. Head produced, obtuse at the tip; antennæ short, ensiform; labrum with a large brown spot in the fore border. Tegmina greyish brown, varied with darker blotches and spots, nearly triangular, with the tip pointed, and the hind margin curving beneath, but not greatly. Abdomen and legs pale yellow, the latter with black dots.

Length 30 mm.; expanse of tegmina, 50 mm.

CEYLON; JAVA.

Subfamily VII. PAMPHAGINÆ.

Genus **ASPIDOPHYMA.**

Aspidophyma, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 26, 491.

TYPE, *Aspidophyma americana*, Bol.

Range. Ceylon, Ecuador.

Head above nearly triangular; fastigium depressed, horizontal, rather longer than broad; front very slightly sinuated, with the frontal ridge sulcated; antennæ filiform or subensiform, inserted between the eyes. Pronotum truncated in front, truncated or broadly situated behind, tricarinated above, with the lateral carinæ diverging behind, the hinder sulcus placed beyond the middle. Prosternum with a slender conical tubercle, sternal lamina margined in front. Tegmina very short or wanting. Hind femora broad at the base, with rather irregular coarse pinniform striæ; tibiæ cylindrical, with strong conical spines. Upper valves sinuated, with dentated margins, and the lower ones sinuated before the tips.

230. **Aspidophyma indica**, *Bol.*

Aspidophyma indica, Bolivar, Ann. Soc. Españ. xiii, 1884, pp. 491, 498.

Ochreous-brown, rugose-punctate, with grey hair beneath and on the legs. Antennæ shorter than the head, subensiform, depressed. Pronotum subtruncated behind, with the transverse sulci slightly marked. Tegmina lobiform, lateral, rounded, impress-punctate, extending to the hind border of the first abdominal segment. Legs with scattered black spots, hind femora with

granulated carinæ, the spines with dark reddish tips. The valves of the ovipositor very short.

Length 17 mm.; antennæ, 4 mm.; tegmina, 2 mm.

CEYLON.

Type in the collection of Brunner von Wattenwyl.

Subfamily VIII. CATANTOPINÆ.

Key to the Genera.

[1	(26)	Posterior tibiæ with an external apical spine.	
2	(25)	Tegmina present.	
3	(24)	Tegmina and wings fully developed.	
4	(5)	Head short and very broad, the face broader than long	EUTHYMIA, Stål, p. 196.
5	(4)	Head not remarkably broad.	
6	(15)	Mesosternal lobes meeting in a straight line.	
7	(12)	Antennæ between the eyes or scarcely in front of them.	
8	(11)	Antennæ filiform.	
9	(10)	Posterior femora reaching apex of abdomen; posterior tibiæ with about 15 moderately strong spines on outer edge .	OXYRRHEPES, Stål, p. 209.
10	(9)	Posterior femora much shorter than abdomen; posterior tibiæ with about 20 small spines on outer edge; thorax with white lateral stripe ..	LEPTACRIS, Walk., p. 210.
11	(8)	Antennæ ensiform	ISCHNACRIDA, Stål,* p. 212.
12	(7)	Antennæ remote from the eyes.	
13	(14)	Fastigium with a distinct carina	XENIPPA, Stål, p. 215.
14	(13)	Fastigium without carina	PSEUDOCARSULA, Brunn., [p. 214
15	(6)	Mesosternal lobes more or less separated.	
16	(17)	Tegmina with a patch of densely placed transverse nervures at the parting of the radial veins	SPATHOSTERNUM, Karsch, [p. 207.
17	(16)	Tegmina without a patch of nervures.	
18	(23)	Prosternal tubercle cylindrical, somewhat acuminate at apex; external apical spine of posterior tibiæ quite distinct.	

* *Ischnacrida tarsalis*, Walker, has the mesosternal lobes contiguous in the middle only, slightly diverging posteriorly; the prosternal tubercle is enlarged at the apex and slightly concave.

19 (22) Lateral carina of head slightly sinuous or nearly straight from the base of mandibles to ocelli.
20 (21) Posterior tibiæ with the outer ridge that bears the spines somewhat flattened and expanded towards the apex; with seven spines besides the apical one; frontal carina narrowed at vertex . . . . OXYA, Serv., p. 198.
21 (20) Posterior tibiæ with outer ridge not expanded; with eight spines besides the apical one. CARYANDA, Stål, p. 201.
22 (19) Lateral carinæ of head suddenly bent at an angle at the base of the antennæ; frontal carina parallel-sided . . . . HIEROGLYPHUS, Krauss,* [p. 201.
23 (18) Prosternal tubercle truncate at apex; external apical spine of posterior tibiæ very small and difficult to detect . . . . . . RACILIA, Stål, p. 205.
24 (3) Tegmina imperfectly developed, elongate ovate, punctured; without wings; antennæ rather short, with transverse joints . . . . CERCINA, Stål,† p. 206.
25 (2) Tegmina and wings absent; insect elongate, subcylindrical; head short and wide . . . . . . TARBALEUS, Brunn., p. 200.
26 (1) Posterior tibiæ without external spine at the apex.
27 (34) Fastigium separated by a distinct angle or ridge from the frontal carina.
28 (31) Wings fully developed.
29 (30) Fastigium a little longer than broad; antennæ narrowly ensiform; tegmina somewhat acute at apex; posterior femora reaching apex of abdomen . . . . GELASTORRHINUS, Brunn. [p. 216.
30 (29) "Rostrum in front of the eyes longer than the pronotum; antennæ broadly ensiform towards the base, tapering whip-like towards the tips" (Kirby) . . . . LEFROYIA, gen. n., p. 219.
31 (28) Wings absent.

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* *H. bettoni* and *H. bilineatus* sometimes have the tegmina and wings more or less short.

† The genus *Castetria* appears from description to differ from *Cercina* in having the hind margin of the pronotum angular, and the radial vein of the tegmina costiform.

32 (33) Tegmina reduced to a short narrow strip . . . . MESAMBRIA, Stål, p. 220.

33 (32) Tegmina absent; antennal joints elongate . . . . WACATA, gen. n., p. 219.

34 (27) Fastigium deflexed or horizontal, gradually blending with the frontal carina.

35 (70) Pronotum with no lateral carinæ.

36 (41) Mesosternal lobes slightly converging posteriorly with the inner angle acute. (Large species.)

37 (40) Prothorax gradually narrowed anteriorly.

38 (39) Wings generally with dark spots at apex . . . . ORTHACANTHACRIS, Karsch, [p. 224.

39 (38) Wings without dark spots . . . . CYRTACANTHACRIS, Walk., [p. 230.

40 (37) Prothorax rather short and strongly constricted in the middle . . . . SCHISTOCECRA, Stål, p. 232.

41 (36) Mesosternal lobes not converging, angles rounded.

42 (67) Prosternal tubercle acuminate.

43 (48) Thorax with a crest.

44 (47) Crest simple.

45 (46) Crest very high and compressed; tegmina extending slightly beyond apex of abdomen; hind femora with the carinæ serrate . . . . TERATODES, Brullé, p. 234.

46 (45) Crest less high; tegmina short, ovate; wings rudimentary. . PELECINOTUS, Bol., p. 233.

47 (44) Crest viewed sideways divided into four unequal lobes; apterous, rugose . . . . ALECTOROLOPHUS, Brunn., [p. 236.

48 (43) Thorax without crest.

49 (52) Upper part of frontal costa arched forwards and projecting over the lower part of the face.

50 (51) Thorax subparallel-sided, flattened dorsally, with median carina scarcely visible except at base; base with small obtuse lobe in the middle; tegmina scarcely reaching apex of abdomen . . . . BIBRACTE, Stål, p. 235.

51 (50) Thorax scarcely narrowed in front, flattened dorsally, the median carina visible for whole length; base angular; tegmina extending slightly beyond abdomen; eyes prominent . . . . TRAULIA, Stål, p. 244.

52 (49) Upper part of frontal carina not projecting; face vertical.

53 (56) Vertex between the eyes wider than the frontal costa.

54 (55) Thorax slightly tectiform, asperate; frontal costa scarcely reaching the clypeus; tegmina generally with a black spot . . . . GERENIA, Stål, p. 243.

55 (54) Thorax flattened dorsally, giving the appearance of lateral carinæ; eyes prominent; base of thorax scarcely angular, with a small central notch . . . . NAVASIA, gen. n., p. 255.

56 (53) Vertex not wider than frontal costa.

57 (66) Dorsal carina of pronotum cut by three grooves.

58 (59) Antennæ nearly three times as long as the head and thorax together; eyes rather prominent; thorax narrow, subparallel-sided, the base acutely angular . . . . APALACRIS, Walk., p. 237.

59 (58) Antennæ less than twice the length of the head and thorax together.

60 (61) Base of pronotum biangulate, having an angular emargination in the middle . . . . BIBRACTOIDES, gen. n., p. 236.

61 (60) Base of pronotum angularly produced.

62 (65) Frontal costa parallel-sided, not or scarcely wider between antennæ, its margins generally obtuse and smooth.

63 (64) Tegmina fully developed, obliquely truncate at apex. . . . COPTACRA, Stål, p. 238.

64 (63) Tegmina short, scarcely longer than pronotum, narrowed towards apex . . . . COPTACRELLA, Bol., p. 239.

65 (62) Frontal costa distinctly widened between antennæ and wider than the vertex between the eyes; tegmina obliquely truncate at apex . . . . EUCOPTACRA, Bol., p. 240.

66 (57) Dorsal carina of pronotum cut by the third groove only; tegmina fully developed, obliquely truncate at apex . . EPISTAURUS, Bol., p. 242.

67 (42) Prosternal tubercle cylindrical, obtuse at apex.

68 (69) Metasternal lobes in both sexes contiguous, rarely slightly separated in female; posterior tibiæ with at least nine spines on the outside . . CATANTOPS, Schaum, p. 246.

69 (68) Metasternal lobes widely separated in female; posterior tibiæ with eight spines on outside .... STENOCROBYLUS, Gerst., [p. 254.
70 (35) Pronotum with lateral carinæ, sometimes somewhat broken up posteriorly by punctuation.
71 (78) Hind femora short and very thick, their upper edge toothed.
72 (73) Body depressed; pronotum very flat and broad, produced angularly at the base, the produced part equal in length to the anterior portion; lateral carinæ very obscure; tegmina and wings short .... BRACHYXENIA, gen. n., p. 256.
73 (72) Body of normal form.
74 (77) Tegmina and wings fully developed.
75 (76) Lateral carinæ of pronotum nearly rectilinear, complete . CALOPTENOPSIS, Bol., p. 258.
76 (75) Lateral carinæ of pronotum slightly flexuous, almost obliterated posteriorly by coarse punctuation .... KRIPA, gen. n., p. 257.
77 (74) Tegmina short, ovate .... PERIPOLUS, Mart., p. 261.
78 (71) Hind femora comparatively slender, much narrowed towards knees, extending beyond apex of abdomen, not or scarcely denticulate.
79 (80) Prosternal lobe bilobed at apex; posterior tibiæ with 13–15 spines on outer edge ...... TYLOTROPIDIUS, Stål, p. 265.
80 (79) Prosternal lobe simple.
81 (82) Prosternal lobe acuminate, bent backwards at an angle about the middle; posterior tibiæ with about 12 spines on outer edge .... HETERACRIS, Walk., p. 262.
82 (81) Prosternal lobe straight, obtuse at apex; posterior tibiæ with 8–10 spines on outer edge.
83 (84) Tegmina and wings fully developed .... EUPREPOCNEMIS, Fieb., [p. 267.
84 (83) Tegmina and wings short .... PARAEUPREPOCNEMIS, Brunn., [p. 266.

Genus EUTHYMIA.

Euthymia, Stål, Bih. Svensk. Akad. Handl. iii (14), 1875, p. 29.

Type, *Euthymia melanocerca*, Stål.

Range. India, Ceylon, Borneo, Madagascar.

Body rather short and stout, everywhere closely punctured; head obtuse, vertex and fastigium sloping into the front, which is very broad, with the carinæ converging below; the lateral carinæ nearly straight; eyes large and prominent; antennæ slender, long or short. Pronotum pubescent, not carinated, obtusely rounded behind, the transverse sulci well-marked, continuous, the hind sulcus placed beyond the middle. Tegmina and wings well developed, not longer than the abdomen, and usually shorter; tegmina narrow, rounded at the tips, uniformly coriaceous; wings more or less coloured or infuscated. Legs rather stout, as long as the abdomen in the male and shorter in the female; hind tibiæ with from 7–15 spines, of equal length on both carinæ, and with terminal apical spines above on both sides; hind tarsi long, with the second joint half the length of the first. Prosternal tubercle obtuse; metasternal lobes contiguous in both sexes. Supra-anal lamina of the male triangular, with the sides entire; male cerci acute.

Key to the Species.

Wings red	*kirbyi*, Finot.
Wings hyaline-yellow	*finoti*, sp. n.
Wings blue-grey, infuscate at apex	*greeni*, sp. n.

231. Euthymia kirbyi, *Fin.*

Euthymia kirbyi, Finot, Ann. Soc. Ent. France, lxxi, 1903, pp. 622, 629, 630, figs. 6, 7.

Body very stout, light brown, with green spots and blotches. Head reddish brown, with green markings above, finely punctured; antennæ slender, 23-jointed, shorter than the head and pronotum together, rusty brown, darkest in the middle. Pronotum short, constricted in the middle, brown, with the deflexed lobes more yellowish, impress-punctate, rugose behind and with a very slight median carina, hind border obtusely rounded; deflexed lobes with the lower margin nearly straight, and strongly rounded at the hinder angle; the transverse sulci dark, well-marked, the hind sulcus placed beyond the middle. Tegmina nearly as long as the abdomen, greyish brown, with dense brown reticulation and subhyaline areolæ; wings shorter than the tegmina, pale red at the base, with the tip and hind margin slightly clouded. Legs rather short; hind femora externally testaceous brown with greenish

black spots; internally with a long black green-spotted space towards the base, and a greenish black spot on the apical third; the lower sulcus blue-black; hind tibiæ pubescent, yellowish brown, with the apical half reddish below, and ten black spines on each side, the inner row reddish at the base; hind tarsi testaceous brown, the first two joints reddish on the inner side, the second joint only half as long as the first. Prosternal tubercle broad, truncated. Abdomen brown above, paler below; supra-anal lamina of the female triangular, longitudinally sulcated in the middle; cerci of the female narrowly conical; valves of the ovipositor short, with the tip and borders of the upper valves blackish above.

Length 34 mm.; tegmina, 23 mm.

MADRAS: Kodaikanal.

232. Euthymia finoti, sp. n.

Light ferruginous brown, the head clothed with greyish pubescence. Antennæ slender, red, at least as long as the head and pronotum together. Pronotum and abdomen ferruginous brown above, the sides and under surface more or less whitish; the pronotum thickly and rather finely impress-punctate, the abdomen smooth; transverse sulci slightly marked, the hinder one placed about the middle of the pronotum; pronotum with a slight carina on the metazona, and the hind border obtusely rounded; deflexed lobes sinuated and upcurved on the lower margin, with the hinder angle rounded. Tegmina as long as the abdomen without the appendages, lighter than the pronotum, and varied with pale spaces, especially towards the costa; wings clear hyaline yellow, almost to the margins. Four front legs reddish brown, with thick grey pile; hind femora shorter than the abdomen, the outer surface pinkish white, with rows of more or less regular moderate-sized black spots; inner surface blue-black, with two white bands, one beyond the middle, and the other before the knees; hind tibiæ reddish, thickly pilose, with 10 or 11 black-tipped spines on each side, darker on the inner surface, where there is a white band near the base: hind tarsi red, the second joint above only one-third

Fig. 115.—*Euthymia finoti.*

as long as the others. Valves of ovipositor bifid at the tips, with upturned points.

Length 36 mm.; tegmina, 33 mm.

Ceylon: Trincomali.

Type in the British Museum.

233. **Euthymia greeni**, sp. n.

Dull yellowish brown, obscurely mottled with blackish. Head and pronotum rather thickly punctured. Tegmina subhyaline with reddish brown nervures; wings greenish subhyaline, with brown nervures, and the hind margin rather narrowly bordered with brown. Legs with grey hairs, front and middle femora black, tibiæ and tarsi testaceous, varied with black; hind femora black, slightly varied with testaceous towards the tip; hind tibiæ and tarsi testaceous on the outer side; tibiæ black on the inner side, with a yellow band towards the base, and a broad red space beyond the middle; hind tarsi red on the inner side; hind tibiæ with 9 or 10 black spines.

Length 43 mm.; tegmina, 30 mm.

Ceylon: Galgedara.

Genus OXYA.

Oxya, Serville, Ann. Sci. Nat. xxii, 1831, pp. 264, 286: id., Ins. Orth. 1839, p. 675.

Type, *Oxya hyla*, Serv., from Africa.

Range. Africa, Asia, Australia.

Head large, as broad as or broader than the pronotum; fastigium obtuse, transverse, not contracted before the eyes, which are large and oblique, face very slightly oblique, almost vertical: antennæ filiform. Pronotum smooth, flattened, with the median carina slightly marked or wanting, metasternal lobes contiguous in both sexes. Tegmina narrow, obtusely rounded at the extremity, expanded towards the base on the costa, as long as the abdomen, subhyaline, irregularly reticulated, with large cells; wings broad, rounded at the tips, and nearly as long as the tegmina. Legs long and slender, hind tibiæ expanded at the tips, and with about ten spines on each carina, including an outer apical spine.

Key to the Species.

1	(2)	Hind femora with the upper carina projecting into a small tooth	*velox*, F.
2	(1)	Hind femora unarmed.	
3	(4)	Last ventral segment bidenticulate behind	*vicina*, Brunn.
4	(3)	Last ventral segment entire	*intricata*, Stål.

234. Oxya velox, *F.*

Gryllus velox, Fabricius, Mant. Ins. ii, 1787, p. 239.
Gryllus chinensis, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 253; ix, 1824, pp. 398, 419.
Heteracris apta, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 666.

Green, with a broad black band extending from the upper half of the eye to the base of the tegmina; vertex often with two diverging brown lines, and sometimes the middle of the vertex and pronotum filled up with a brown band. Tegmina longer than the hind femora, subhyaline, with rufous nervures; the costa, which is rather suddenly expanded near the base, sometimes clouded, and the inner margin green. Legs green, hind femora with the middle carina terminating in a small tooth; knees marked with blackish and reddish; hind tibiæ, beyond the middle, and first joint of tarsi considerably expanded; hind tibiæ blue with about 10 white black-tipped spines. Last ventral segment in female longitudinally bicarinate.

Fig. 116.—*Oxya velox.*

Length 16–32 mm.; expanse of wings, 33–60 mm.

KASHMIR: Baltistan; ASSAM: Sylhet; BOMBAY: Kanara; CEYLON; CHINA; MALAY STATES: Singapore; JAVA, &c.

The figure is taken from Walker's type of *O. apta*.

235. Oxya vicina, *Brunn.*

Oxya vicina, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 152.

Very similar to *O. velox*, but the pronotum uniform wood-brown above. Antennæ longer than the head and pronotum together. Tegmina shorter than the hind femora, with the mediastinal area in both sexes gently rounded, and the border pale, not crenulated. Hind femora entire at the tip, the knees very slightly infuscated. Abdomen with the last ventral segment smooth, and the hind margin bidenticulate; cerci not bidenticulate, obliquely truncated in the male.

Length 27–38 mm.; tegmina, 18·5–34 mm.

HIMALAYAS; CHINA; JAPAN.

236. **Oxya intricata**, *Stål.*

Acridium (Oxya) intricatum, Stål, Eugenie's Resa, Orth. 1860, p. 335.

Olive-green or yellowish, slightly pubescent, shining. Fastigium of the vertex obtuse; vertex smooth, sometimes excavated in front of the eyes, shorter than broad; a dark brown or brownish testaceous stripe behind the eyes, extending over the pronotum and pectus; antennæ filiform, one-fourth longer than the head and pronotum together. Pronotum thickly punctured, truncated in front and obtusely and roundly angulate behind, with a slight median carina, which is obsolete in front; two of the transverse sulci well marked. Tegmina rather longer than the hind femora, slightly narrowed towards the tips, the costa expanded towards the base; subhyaline, with brownish nervures, the inner margin sometimes green; wings brownish hyaline, with brown nervures. Prosternal tubercle conical, pointed. Hind femora rather longer than the abdomen, moderately thickened, testaceous, at least at the tip, with the upper carina entire; spines of the hind tibiæ tipped with black. Male with the infra-anal segment triangular, obtuse; female with the last ventral segment smooth, with the hind margin entire.

Length 18–35 mm.; expanse of tegmina, 31–64 mm.

CEYLON; CHINA; MALACCA; JAVA, &c.

Genus **TARBALEUS**.

Tarbaleus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, p. 234.

TYPE, *Tarbaleus pilosus*, Brunn., from Gilolo.

Range. Ceylon, Moluccas.

Head short, broad, rugose in front; eyes oblique, oval, closely approximating; vertex passing into the front, frontal ridge shallowly sulcate, broader above than below; antennæ filiform, longer than the head and pronotum. Pronotum short, transverse, with four transverse sulcations, truncated before and behind; pronotum and abdomen finely punctured. Tegmina and wings absent. Front and middle legs rather short, hind legs long, pilose; hind tibiæ with a variable number of short spines, and with an outer terminal spine. Prosternal tubercle short, broad, obtuse, and indented; supra-anal lamina of female large, produced beyond the short ovipositor.

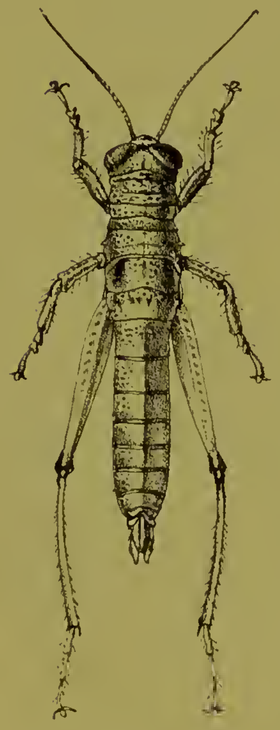

Fig. 117.—*Tarbaleus cingalensis*.

237. **Tarbaleus cingalensis**, sp. nov.

Apterous, uniform olive-green or rusty brown; legs pilose, hind tibiæ with 7 small black-tipped spines on each side, and with an outer apical spine.

Length 28–45 mm.

CEYLON.

Type in the British Museum.

Genus CARYANDA.

Caryanda, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, p. 47.

TYPE, *Acridium* (*Oxya*) *spurium*, Stål.

Range. Ceylon, Burma, Java, China, West Africa.

Head and eyes large, prominent; antennæ as long as head and pronotum together; tegmina lobiform; hind femora with the upper carina denticulate, hind tibiæ not expanded, with 8 spines on the inner carina besides the apical one, at regular distances; cerci of the male pointed; last ventral segment of female smooth, not denticulated.

238. **Caryanda sanguineo-annulata**, *Brunn.*

Caryanda sanguineo-annulata, Brunner, Ann. Mus. Genova, xxiii, 1893, p. 154, pl. v, fig. 52.

Olivaceous, with a black stripe running on each side from the eyes to the extremity of the abdomen. Front somewhat sloping, coarsely punctured. Pronotum cylindrical, with the hind margin truncated. Tegmina lobiform, lateral, half black and half olive. Hind femora olivaceous, ringed with red before the knees, which are black, the upper carina with a projecting tooth; hind tibiæ and tarsi dull bluish, with a white ring at the base; spines of the tibiæ white, tipped with black.

Length 20–25 mm.; tegmina, 3·5–4 mm.

BURMA: Pegu.

Type in the Genoa Museum.

Genus HIEROGLYPHUS.

Hieroglyphus, Krauss, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. lxxvi (1), 1877, p. 41.

TYPE, *Hieroglyphus daganensis*, Krauss.

Range. China, India, Burma, Senegal.

Size large, head very large, eyes wide apart; fastigium of the vertex short, convex, rounded in front; costal ridge broad, entire, slightly sloping; antennæ slender, filiform, much longer than the

head and pronotum together in the male, and as long or longer in the female. Pronotum as broad as the head, with the sulci very strongly marked, usually with black lines. Prosternal tubercle acute; meso- and meta-sternal lobes more or less widely separated, or contiguous in the male. Genicular lobes of hind femora pointed, or rounded; hind tibiæ with 8 or 10 spines on the outer carina, and 10 on the inner. Tegmina subhyaline, very thickly reticulated towards the base, and with the costa only slightly expanded; wings hyaline, rather long, narrow and pointed. Male with the cerci long, pointed or obtuse, with a tooth on the inner side; subgenital lamina long, conical, pointed; female with the genital valves short, thick, curved, the upper ones very broad, with the outer margin crenulated, the lower pointed, and armed with a tooth beyond the middle.

Key to the Species.

1	(6) Pronotum unicolorous.	
2	(5) Pronotum with a longitudinal dorsal black line on each side.	
3	(4) Black line straight, narrow; episterna with a small black line.	*bilineatus*, sp. n., p. 202.
4	(3) Black line broad, emitting broad lines down the sides; episterna broadly bordered with black. .	*bettoni*, sp. n., p. 203.
5	(2) Pronotum with narrow black lines in the transverse grooves	*banian*, F., p. 204, *concolor*, [Walk., p. 204.
6	(1) Pronotum yellowish green, with the front and hind margins yellow	*citrinolimbatus*, Brunn., p. 205.

239. Hieroglyphus bilineatus, sp. nov.

Hieroglyphus bilineatus, Saussure MS.

Yellowish brown (probably green in life). Scutellum of the vertex short, transverse, obtusely rounded and almost ridged in front; costal ridge sulcated throughout, incurved below the ocellus, lateral carinæ incurved below the antennæ, and then divergent. Pronotum closely punctured, with four sulci, the front one lateral, and from its upper extremity runs a black line backwards to two-thirds of the length of the tegmina; there is also a black rectangle on the lower part of the second suture, with a branch projecting forward, and an oblique black line above the middle pair of legs. Tegmina about one-third of the length of the abdomen in the female, and about half as long in the male. Hind femora with a black spot on each side above before the extremity; hind tibiæ black at the base, at least on the sides, and with 9 or 10 black spines on each carina. Male with the cerci obtuse; female with the appendages bordered and tipped with

black, the lower ones pointed, and armed with a tooth below before the extremity.

Length 22–36 mm.; tegmina, 9–11 mm.

BENGAL.

Types in the British Museum.

Mr. H. Maxwell Lefroy suggests that this is a micropterous form of *H. banian*.

240. **Hieroglyphus bettoni**, sp. nov.

Green or testaceous. Fastigium of the vertex short, transverse, slightly convex and rounded in front, costal ridge sulcated throughout, the lateral carinæ only slightly divergent below. Pronotum finely punctured, with four sutures, the first lateral, the

Fig. 118.
Hieroglyphus bettoni, ♂.

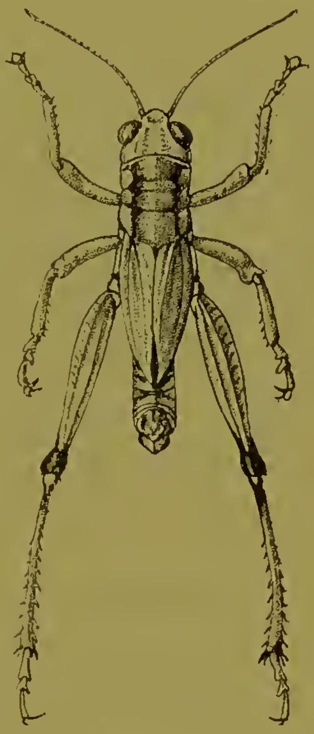

Fig. 119.
Hieroglyphus bettoni (brachypterous ♂).

second only dorsal, and the third and fourth continuous; median carina slightly marked, most distinct on the hinder lobe: the lateral sutures heavily marked with black, and connected above by a black line running from the upper end of the first to the tegmina, and below by a black line connecting the first and third sutures; the space enclosed is often white or yellow; the spaces

above the middle and hind legs are also streaked with black, and there is a double row of black spots on the abdomen above. Femora black at the tips; hind tibiæ blue, black at the base, and with 9 or 10 white black-tipped spines. Tegmina subhyaline, greenish at the base, longer than the abdomen, or abbreviated, with the principal nervures black; wings hyaline, with brown or black nervures.

Length 38–44 mm.; wings, 18–40 mm.

ASSAM: Cachar; BOMBAY: Moghal Sarai.

Types in the British Museum.

241. Hieroglyphus banian, *F.*

Gryllus banian, Fabricius, Ent. Syst., Suppl. 1798, p. 194.
Acridium furcifer, Serville, Ins. Orth. 1839, p. 677, pl. xiv, fig. 12.

Green, including the antennæ. Pronotum smooth, with four sulci, narrowly lined with black, the first obsolete above, the second on the sides, and the last two continuous. Tegmina subhyaline, densely reticulated and greenish at the base, with green nervures; wings as long as the tegmina, greenish hyaline. The three sub-terminal ventral segments with silky tufts of hair on the middle. Hind tibiæ blue, with black-tipped spines. Antennæ with the basal joint yellowish green, the rest dark green, tipped with yellow. Subgenital lamina of male moderately long.

Length 43 mm.

BOMBAY: Kaphot; CENTRAL PROVINCES: Bilaspur; BURMA: Bhamo.

Type in the Paris Museum.

Said to be destructive to rice in the Central Provinces, and to crops in general in Guzerat and Kattiawar.

242. Hieroglyphus concolor, *Walk.*

Oxya concolor, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 646.
Hieroglyphus tarsalis, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, p. 94.

Very similar to the last species. Antennæ black, pale at the base, and at the ends of the joints. Pronotum finely punctured, the sulci narrowly lined with black. Hind femora with a black spot on each side at the base of the knees, or with a black crescent on each side of the knees; hind tibiæ blue, with the base black, or narrowly ringed with black, and the tip, as well as the base of the first joint of the tarsi, black. Abdomen beneath pubescent in the middle, at least in the male; subgenital lamina of male rather short.

Length 41–62 mm.; expanse of tegmina, 48–75 mm.

BOMBAY: Kanara; ASSAM: Sylhet; CHINA.

Type in the British Museum.

Appears to be commoner than the last species, with which it is probably often confounded.

243. **Hieroglyphus citrinolimbatus**, *Brunn.*

Hieroglyphus citrinolimbatus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 154.

Yellowish green, antennæ black, with the extremities of the joints yellow. Pronotum bordered with yellow before and behind. Hind femora marked with black before the knees on the inside, and in the male, also on the outside. Male with the supra-anal lamina long, pointed, sulcated in the middle; male cerci hairy, rather straight and pointed.

Length 42–62 mm.; tegmina, 30–37 mm.

HIMALAYAS; BURMA: Bhamo.

Type in the Genoa Museum.

Genus **RACILIA**.

Racilia, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 48, 94.

TYPE, *Racilia femoralis*, Stål.

Range. Philippines, Burma.

Head prominent; fastigium of the vertex triangular, rounded at the extremity, not transverse, front very oblique; lateral carinæ strongly divergent; prosternal tubercle truncated but not indented at the tip; genital valves of female unarmed; hind femora with the genicular lobes pointed, hind tibiæ not expanded, with 7 or 8 spines on the outer margin, the terminal spine nearly obsolete; tegmina and wings well developed.

244. **Racilia aurora**, *Brunn.*

Racilia aurora, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 155, pl. v, fig. 53.

Olive-brown, with a narrow lateral whitish stripe above, running from the vertex to the end of the tegmina, and another broader one running from the cheeks as far as the hind coxæ. Fastigium of the vertex obtusely triangular; front olive-brown, thickly punctured; cheeks white, with a vertical black band within the eyes. Pronotum thickly punctured, with the hind margin obtusely triangular. Tegmina narrow, obtusely pointed, longer than the wings, which are smoky subhyaline. Legs dull green, hind femora reddish towards the tips, knees black; tibiæ and tarsi blue, with black spines. Male with the subgenital lamina elongate-triangular, sulcated at the base; cerci straight, hairy, bidentate at the tips.

Length 22 mm.; tegmina, 16 mm.

BURMA: Teinzo.

Type in the Genoa Museum.

Genus CERCINA.

Cercina, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 49, 97.

Cheeks and front sparingly punctured; pronotum more thickly, especially above. Antennæ short and thick, rather shorter than the pronotum, with short joints; costal ridge slightly sulcated, with parallel sides, and narrowed towards the base; fastigium transverse, obtuse, nearly horizontal; space between the eyes twice as broad as the frontal ridge; eyes slightly convex. Pronotum pubescent on the back, truncated before and behind, with the median carina represented by a small line. Tegmina rudimentary, narrow, lateral, extending rather beyond the median segment, about twice as long as broad, and more rounded on the outer than on the inner border. Hind femora about as long as the abdomen, the dorsal carina terminating in a very small obtuse tooth, genicular lobes pointed, triangular; hind tibiæ with seven spines on the outer margin besides the obsolete apical spine. Prosternal tubercle rather prominent; metasternal lobes very slightly separated; genital valves with the edges denticulated.

Fig. 120.—*Cercina obtusa.*

245. Cercina obtusa, *Stål.*

Cercina obtusa, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 49, 97.

Olivaceous, shining, slightly pilose, with a darker band extending behind the eyes across the lateral lobes of the pronotum; hind tibiæ testaceous, with black-tipped spines.

Length 20 mm.

Ceylon.

Type in the collection of Brunner von Wattenwyl.

Genus CASTETRIA.

Castetria, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 614.

Type, *Castetria dispar*, Bol.

Range. S. India.

Fastigium of the vertex obtuse, obtusely and roundly angulate in front, carinated above in the middle, the margins slightly compressed, but rounded and punctured; front oblique, the frontal ridge smooth or slightly sulcated, continuous to the extremity of the clypeus; antennæ short. Pronotum angulated

behind, the back cylindrical, punctured, with the median carinæ more or less prominent, the margins smooth and shining; the deflexed lobes narrowed towards the extremity, with the outer border angulated in the middle. Tegmina lanceolate, not longer than the pronotum, with the radial nervure forming a continuous raised carina. Prosternal tubercle transverse, compressed, subfoliaceous, obtusely angulated at the tip; space between the mesosternal lobes equally long and broad, with the margins slightly divergent behind; the metasternal lobes not contiguous, but slightly separated behind the foveolæ. Hind femora about as long as the abdomen, the tip not produced above the carinæ; hind tibiæ with 8 spines on the outer carina, besides the apical one. Genital valves of the female with the borders denticulated.

246. **Castetria dispar**, *Bol.*

Castetria dispar, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 614.

Ochraceous brown, or partly green. A shining brown stripe behind the eyes, with a pale border above and below, extending to the hind border of the lobes of the pronotum; on the head is a second band lower down; costal ridge smooth, sometimes slightly indented near the ocellus; fastigium of the vertex obtuse, more transverse in the female than in the male. Pronotum with the back smooth, impress-punctate, obtusely angulated behind, with the hind sulcus placed more distinctly behind the middle in the female than in the male; the median carina moderately prominent in the male, and slightly so in the female. Tegmina lanceolate, with the radial nervure raised, the tip slightly compressed in the male, and concave on the inner side towards the tip in the female. Legs olive, hind femora darker above. Abdomen varied with brown on the sides.

Length 12–16 mm.; tegmina, 2–3·5 mm.

MADRAS: Madura.

Genus **SPATHOSTERNUM**.

Spathosternum, Karsch, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. lxxvi (1), 1877, p. 44.

TYPE, *Tristria nigrotæniata*, Stål.

Range. India, Siam, West Africa.

Size rather small. Head and pronotum convex and level, with parallel sides; eyes very large, broader; front very sloping, frontal ridge sulcated throughout; antennæ very short, often hardly longer than the pronotum, thick, filiform. Pronotum tricarinated, longer than the head, rounded or smooth, obtusely angulated behind. Prosternal process straight, transverse, slightly curved backwards, longitudinally impressed, base narrow, apex

broad, emarginate, bilobate; mesosternal lobes distant; metasternal lobes contiguous. Tegmina narrow, rounded at the extremity, with close transverse nervules between the two radial nervures. Hind tibiæ long and slender, hardly dilated, with 9 or 10 spines, besides the apical one. Female with the valves rather short, the upper borders crenulated or smooth, the lower ones armed with a small tooth behind the middle.

Key to the Species.

Postocular band well marked	*prasiniferum*, Walk.
Postocular band obsolete, or suffused green....	*venulosum*, Stål.

247. **Spathosternum prasiniferum**, *Walk.*

Heteracris (?) *prasinifera*, Walker, Cat. Derm. Salt. B.M. v, Suppl. 1871, p. 65.
? *Caloptenus caliginosus*, Walker, op. cit. 1871, p. 69.
Stenobothrus strigulatus, Walker, op. cit. 1871, p. 82.

Rufo-testaceous or green, with a broad blackish or dark green stripe running behind the lower part of the eyes and below the lateral carinæ of the pronotum. It is banded above by a narrow pale yellow line, and below by a broader one, below which again is another dusky band, bordered below with yellow. Tegmina light brown towards the base, and subhyaline beyond; central area with a longitudinal black streak, generally almost obsolete in the male, and well marked in the female, but very variable, sometimes being entire, but more frequently with white transverse markings, sometimes numerous enough to break it into spots; inner margin obscure or reddish in the male, and generally green in the female; wings hyaline, often clouded towards the tip. Legs rufo-testaceous; hind femora often more or less green, especially in the female, and frequently with a dark longitudinal band on the outer area; hind tibiæ with 10 or 11 spines, and sometimes green.

Fig. 121.
Spathosternum prasiniferum.

Length 13–20 mm.; expanse of tegmina, 25–30 mm.

Bombay; Bengal: Pusa.

Type in the British Museum.

A very abundant and variable species. I am not quite certain whether *caliginosus* of Walker, from an unknown locality, should be included here; it is unusually green, and the abdominal appendages of the female are unusually short.

248. **Spathosternum venulosum**, *Stål.*

Spathosternum venulosum, Stål, Bih. Svensk. Akad. Handl. v (4) 1878, p. 97.

Allied to the African *S. nigrotæniatum*, Stål, but smaller, and with the front less oblique. The lateral margins of the upper side of the pronotum narrowly smooth, the rugæ fine and slightly raised. Tegmina with a short brown stripe on the disk, marked with whitish veins before and behind; beyond the middle rather thickly reticulated, with very numerous transverse nervules between the inner radial nervures on the disk; postocular band on the head and pronotum obsolete or greenish. Mesosternal lobes strongly diverging beyond the middle. Hind tibiæ with about 10 spines in addition to the terminal one.

Length 20 mm.

India (?).

Type in the Stockholm Museum.

Genus OXYRRHEPES.

Oxyrrhepes, Stål, Œfv. Vet.-Akad. Förh. xxx (4), 1873, pp. 40, 53.

Type, *Opsomala lineatitarsis*, Stål (*extensa*, Walk.).

Range. Oriental Region, Africa.

Body moderately stout. Fastigium of the head rather short, sloping, rectangular or obtuse at the tip, front moderately oblique; frontal ridge sulcated, narrower above than below, but not compressed; antennæ simple. Pronotum depressed above between the carinæ, and punctured; obtusely angulated behind. Prosternal tubercle conical or compressed. Hind femora about as long as the abdomen, the genicular lobes triangular, not longer than the tips of the femora; front legs moderately long, middle femora extending to the base of the hind femora; hind tibiæ with about 12 spines on the outer carinæ, besides the terminal one. Tegmina and wings long, the former hyaline, opaque and densely reticulated towards the base, hardly expanded on the costa; wings hyaline, pointed, twice as long as broad. Male with the subgenital plate not compressed.

249. **Oxyrrhepes extensa**, *Walk.*

Acridium extensum, Walker, Ann. Nat. Hist. (3) iv, 1859, p. 222.
? *Opsomala lineatitarsis*, Stål, Eugenie's Resa, Orth. 1860, p. 324.
Heteracris strangulata, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 665.
Heteracris antica, Walker, op. cit. 1870, p. 668.

Olive-brown, pubescent beneath. Head as broad as the pronotum. Pronotum rugose-punctate, nearly twice as long as the head, with three slender sulci, the last placed rather behind the

middle; the median carinæ raised, hardly intersected by the sulci, the lateral carinæ less strongly marked, the hind border rounded. Tegmina subhyaline, with rufous nervures, and sometimes a longitudinal row of brownish spots between the radial nervures; wings hyaline, slightly clouded towards the borders. Prosternal tubercle prominent, compressed, convex in front. Subgenital lamina of the male long and pointed; valves of the female with the tips curving upwards and downwards, and with a strong tooth at the base of the lower ones. Hind tibiæ with 13 or 14 strong black-tipped spines besides the apical one; first joint of hind tarsi long, grooved above.

Length 40–60 mm.; expanse of tegmina, 57–106 mm.

BURMA; Kachin Hills; CEYLON; CHINA.

Type in the British Museum.

None of the specimens before me show the black line on the tarsi described by Stål in his *O. lineatitarsis* from Hong Kong.

Genus **LEPTACRIS**.

Leptacris, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 676.
Capellea, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 616.

TYPE, *Leptacris filiformis*, Walk.

Range. India, Ceylon.

Size large; body very long and slender, nearly cylindrical. Fastigium of the vertex rather short and broad, nearly horizontal in the male, in the female sloping to the apex, which is obtusely rounded in front and tricarinated from the eyes, behind which the lateral carinæ are obsolete, but the median one, though not conspicuous, is continued over the pronotum; head nearly as long as the pronotum, frontal ridge oblique, sulcated, the bounding carinæ diverging downwards, and hardly reaching the extremity of the clypeus, the space between coarsely punctured, the lateral carinæ running from the base of the antennæ obliquely backwards; antennæ inserted near the eyes, which are large, oval, brown, and striated with black. Pronotum thickly punctured, slightly rounded in front and behind, the hind sulcus placed beyond the middle; the lower border of the deflexed lobes nearly straight, bordered with a silvery white band running from the antennæ, the hind border slightly sloping. Front and middle legs very short, front femora thickened and punctured, hind legs long and slender, though the abdomen extends to three-fourths of the length of the hind tibiæ, which are armed with 20 or 21 spines, and have an outer apical spine. Tegmina and wings well developed, but shorter than the abdomen. Prosternal spine small, slender, compressed, obtuse but not expanded at the tip; mesosternal and metasternal sutures straight in both sexes. Male with the subgenital lamina long, strongly compressed; female with the upper

appendages pubescent, crenulated above, and the lower ones with a strong tooth below at the base.

The described species are too little known for me to venture to tabulate them at present.

250. **Leptacris filiformis,** *Walk.*

Leptacris filiformis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 676.
Capellea argenteovittata, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 616, pl. ix, fig. 33.

Pale olivaceous red, with a silvery band on each side, and with greyish pubescence below; head and pronotum often banded with brown above. Face coarsely impress-punctate; fastigium and vertex depressed between the eyes. Tegmina hyaline, strongly veined, with pale nervures. Hind knees marked with brown on the inner side. Supra-anal lamina of the male lanceolate, channelled in the middle, and sinuated on each side near the tip, which is very pointed; female with the upper appendages compressed, and narrowly sulcated above.

Length 40–80 mm.; tegmina, 37–50 mm.

MADRAS: Madura.

Walker's type is unfortunately missing; but I have little doubt of the identity of his species with that described and figured by Bolivar.

251. **Leptacris maxima,** *Karny.*

Ischnacrida maxima, Karny, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi (1), 1907, p. 298.

Antennæ filiform; fastigium triangular; a silvery band running for half the length of the femora; hind femora beneath concolorous in the male, or with the lower carinæ black in the female.

Length 62–82 mm.

HIMALAYAS.

Type in the collection of Brunner von Wattenwyl.

252. **Leptacris greeni,** sp. nov.

Reddish testaceous, the head and pronotum indistinctly mottled with grey; a white line runs below the lateral carinæ of the head, continued as a broad silvery line on the lower border of the deflexed lobes of the pronotum to the extremity; then continued in yellow to the base of the middle legs, and more indistinctly to the base of the hind legs; head smooth above, face very coarsely punctured, pronotum more finely; hind femora with the outer area longitudinally white between the

carinæ; tegmina subhyaline, with reddish nervures; wings hyaline.

Length 70 m.m.

CEYLON.

Type in the British Museum.

Genus ISCHNACRIDA.

Ischnacrida, Stål, Recens. Orth. i, 1873, pp. 44, 87.

Size rather large; body long, cylindrical, with parallel sides, abdomen usually extending beyond the wings. Fastigium of the vertex usually not carinated, triangular, produced in front of a strongly-marked transverse suture just before the eyes, which are large, oval, and prominent; face very oblique, frontal ridge narrow, the bounding carinæ hardly diverging, the lateral carinæ nearly straight; antennæ distinctly ensiform. Pronotum rounded behind, the sulci only slightly indicated, the hind sulcus placed behind the middle, the lower border of the deflexed lobes nearly straight, the hind border slightly oblique. The prosternal tubercle small, conical, compressed behind. Tegmina long and narrow; wings rather shorter and somewhat narrow. Front and middle legs short, hind wings rather slender. Male with the subgenital lamina long and pointed; female with the appendages compressed.

Key to the Species.

1 (4) Wings unspotted.
2 (3) Wings stained with pink towards the base. *convergens*, Walk.
3 (2) Wings not stained with pink towards the base . . . . *tarsalis*, Walk.
4 (1) Wings spotted with brown . . . . *fusca*, Karny.

253. Ischnacrida fusca.

Ischnacrida fusca, Karny, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi (1), 1907, p. 301.

Brown; antennæ broadly ensiform; fastigium of the vertex hardly longer than broad; a lateral silvery band; tegmina with fine scattered brown dots; hind femora concolorous on the inner side; subgenital lamina of the male hardly longer than the pronotum, not sulcated.

Length, body (without appendages), 44 mm.

CEYLON.

254. Ischnacrida convergens, *Walk.*

Opomala convergens, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 511.

Ischnacrida tæniata, Stål, Œfv. Vet.-Akad. Förh. xxx (4), 1873, p. 53.
Ischnacrida tæniata, Stål, Recens. Orth. i, 1873, p. 87.

Body rather slender. Antennæ ensiform, depressed, considerably broader in the female than in the male; eyes round, prominent, yellowish brown, or olive-greenish; pronotum above with indistinct whitish longitudinal lines, and beneath with a silvery white stripe running from behind the antennæ below the eyes along the lower border of the deflexed lobes of the pronotum, and behind to the hind coxæ; hind femora with a continuous silvery longitudinal stripe on the median outer area, on the inner side is a short black longitudinal line at the base, and the lower carina inclines to pink; there is also a black mark on the inner side at the base of the knees, and another on the inner side at the end of the hind tibiæ, which are armed with 19 or 20 very fine black spines, including the terminal one. Tegmina and wings subhyaline, the latter rosy towards the base. Subgenital lamina very long, slender and pointed, at least as long as the head and pronotum together.

Fig. 122.
Ischnacrida convergens.

In the female specimen before me, the silvery band on the outer side of the femora is obsolete before the extremity on both sides, and also towards the base on the left leg; and on the inner side of the femora is a blackish longitudinal band, bearing white spots; and there is a longitudinal row of black dots (double towards the extremity) on the middle of the tegmina; appendages strongly hooked at the tips.

Length 55–60 mm.; expanse of tegmina, 57–87 mm.

Sind: Karachi; North Bengal (type ♂).

Type in the British Museum.

255. **Ischnacrida tarsalis**, *Walk.*

Opomala tarsalis, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 512, n. 27.

Body stout, green, shining; a white stripe bordered above and partly below with brown runs from the back of the eye to the extremity of the pronotum, but does not reach the lower border

of the deflexed lobes. Eyes prominent, oval, about twice as long as broad. Tegmina greenish hyaline; wings smoky hyaline. Hind femora yellowish green, genicular lobes marked with black within and below; hind tibiæ bluish green, with 12 or 13 black-tipped spines; tarsi red. Prosternal tubercle expanded, bifid, pointed behind; abdominal appendages very hairy, surmounted by two long compressed pointed cerci, the upper appendages converging inwards at the point, and crenulated above, and the lower appendages oblique at the extremity.

Length 52–60 mm.; expanse of tegmina, 65–71 mm.

ASSAM: Sylhet.

Type in the British Museum.

Genus **PSEUDOCARSULA**, nov.

Carsula (?), Brunner (*nec* Stål), Ann. Mus. Genova, xxxiii, 1893, pp. 137, 156.

TYPE, *Carsula tenera*, Brunn.

Range. Burma.

Vertex above smooth, with a transverse sulcus between the eyes; the fastigium obtuse, very pointed at the sides, without foveolæ; antennæ inserted rather before the tip of the vertex, smooth in the male, in the female tectiform above and serrated; frontal ridge compressed, pointed at the tip, with the carinæ distinctly diverging; lateral carinæ well marked, not diverging; eyes not prominent. Pronotum cylindrical, punctured, with indistinct sulci, smooth in the male; with a median carina in the female. Tegmina not extending beyond the fifth segment of the abdomen. Front and middle femora short, the latter only slightly passing the hind coxæ. Hind femora compressed, pilose, the genicular lobes pointed, but not passing the knees; hind tibiæ smooth, with about 14 spines, and a terminal one. Abdomen cylindrical, slightly carinated above; male with the supra-anal lamina sulcated at the base, and very acute at the tip; cerci laminated in both sexes, pointed in the male, and obtuse in the female.

256. **Pseudocarsula tenera**, *Brunn.*

Carsula tenera, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 157, pl. v, fig. 53.

Body pale fulvous above, the sides and the legs pale green; hind femora pale blue.

Length 42–52 mm.; tegmina, 16–17·5 mm.

BURMA: Karen Hills.

Type in the Genoa Museum.

Genus XENIPPA.

Xenippa, Stål, Bihang, Svensk. Akad. Handl. v (4), 1878, pp. 52, 98.

Type, *Xenippa viridula*, Stål, from Khartoum.

Range. S. India, Sudan.

Antennæ distant from the eyes, ensiform; fastigium of the vertex very long and slender, smooth, carinated, a transverse sulcus between the eyes, frontal ridge not sulcated. Pronotum shorter than the head, the front margin sinuated, the lateral lobes straight. Prosternal tubercle expanded at the tip, compressed and produced behind; mesosternal lobes contiguous. Front and intermediate legs rather short, hind femora much shorter than the abdomen, the genicular lobes narrow, triangular, and slightly produced; hind tibiæ with about 12 spines.

257. Xenippa prasina, *Bol.*

Xenippa prasina, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 617.

Green, with grey pilosity beneath. Head half as long again as the pronotum, cylindrical behind the eyes; fastigium of the vertex half as long as the head, distinctly narrowed, tectiform, distinctly carinated toward the tip; vertex with a very slight carina, the longitudinal spaces on each side punctured, transverse sulcus between the eyes slight or obsolete; the front distinctly narrowed throughout all its length, the frontal ridge not sulcated, and its basal third compressed, expanded towards the tip, and distinctly margined on the sides, the lateral carinæ well marked and continuous. Antennæ ensiform, long, rather narrow. Pronotum smooth, coarsely punctured in front, and more finely behind, with the metazona very slightly carinated, produced and obtusely rounded at the base; the deflexed lobes longer than high, the lower border nearly straight, with a narrow callous yellow margin; meso- and meta-notum punctured on the sides; a yellow carina extending from the hinder angle of the pronotum to the intermediate coxæ. Tegmina narrow, hyaline, with green nervures, the tips obtusely rounded, and extending beyond the hind femora; wings red, well developed. Legs short, front tibiæ as short as the front tarsi, hind femora narrow, hind tibiæ with black-tipped spines.

Length 35 mm.; tegmina, 21 mm.

Madras: Madura.

Type in the collection of M. Pantel.

Genus GELASTORRHINUS.

Gelastorrhinus, Brunner, Ann. Mus. Genova, xxxiii, 1903, pp. 137, 157.

Type, *Gelastorrhinus albolineatus*, Brunn.

Range. Indian Region, Africa, Madagascar.

Body long, moderately slender, vertex short; antennæ long, ensiform, slightly remote from the eye; front very oblique, frontal ridge sulcated, with the middle carinæ slightly diverging, and the lateral carinæ straight. Tegmina and wings long, narrow, and pointed. Pronotum smooth, tricarinated; prosternum with a very small tooth. Front and middle legs short, hind legs long and slender; hind femora carinated above, terminating in two pointed lobes; hind tibiæ with 13–20 spines on each carina, but no outer terminal spine. Abdomen compressed; supra-anal lamina of male pointed, sulcated; cerci in both sexes depressed, pointed or rounded; upper abdominal appendages unarmed in the male, the lower ones slightly denticulated in both sexes.

Key to the Species.

1 (2) Antennæ very long, only slightly thickened at base	*filatus*, Walk., p. 216.
2 (1) Antennæ shorter, much thickened and flattened at base.	
3 (4) Tegmina uniform yellowish green.	*laticornis*, Serv., p. 217.
4 (3) Tegmina not uniform yellowish green.	
5 (6) Rostrum separated from vertex by a triangular sulcus; antennæ as long as head and pronotum together	*semipictus*, Walk., p. 217.
6 (5) Rostrum separated from vertex by an arched sulcus; antennæ longer than head and pronotum together.	
7 (8) Tegmina lined with white	*albolineatus*, Brunn., p. 218.
8 (7) Tegmina not lined with white....	*selache*, Burr, p. 218.

258. Gelastorrhinus (?) filatus, *Walk.*

Mesops filatus, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 502.

Rufo-testaceous above, and the sides probably yellowish green. Fastigium of the vertex rather long, obtusely angulated at the extremity, separated from the vertex by a curved sulcus; antennæ more than half the length of the body, long and slender, narrowly ensiform towards the base; head about as long as the pronotum, frontal ridge sulcated, the carinæ diverging towards the extremity. Pronotum with two distinct carinæ, the first about the middle, the second at three-fourths of its length; hind border obtusely rounded,

hind lobe finely granulated; lateral carinæ parallel, with a straight dark line running backwards from the eye bordering the lateral carinæ on the outer side. Tegmina long and very acute, hyaline, with rufous nervures, costa probably greenish, hind border (perhaps) whitish; wings hyaline, considerably shorter than the tegmina. Legs apparently green, varied with reddish, hind tibiæ with about 15 small black-tipped spines.

Length 25–26 mm.; expanse of tegmina, 51–53 mm.

North India.

Type in the British Museum.

Described from two poor male specimens, bleached by spirits.

259. **Gelastorrhinus (?) laticornis**, *Serv.*

Opomala laticornis, Serville, Ins. Orth. 1839, p. 590.

Body, head, and legs delicate green. Head large, conical, the four frontal carinæ prominent; frontal ridge broad, carinated laterally and in front, the front obtusely rounded. Pronotum tricarinate; a dark lateral stripe runs behind each antenna, interrupted by the eye, but beyond to the pronotum, and below the lateral carinæ. Tegmina longer than the abdomen, narrow, linear, subhyaline, and obtusely pointed at the tips, uniform yellowish green; wings hyaline, as long as the tegmina. Antennæ ensiform, long and flattened from the 4th joint to the 12th, beyond that rapidly attenuated, reddish, with the two basal joints and the front of joints 3–12 green.

Length 20–22 mm.

Bombay.

Type in the Paris Museum.

260. **Gelastorrhinus semipictus**, *Walk.*

Opomala semipicta, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 512.
Gelastorhinus tryxaloides, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 617, pl. ix, fig. 34.
? *Gelastorrhinus edax*, pt., Burr, Trans. Ent. Soc. Lond. 1902, p. 181.

Antennæ, head, and pronotum rufous brown above, this colour extending in a band behind the eyes, and below the lateral carinæ; the face and the sides of the body yellowish green. Head smooth, rather shorter than the pronotum; antennæ about 17-jointed, half as long as the body in the male, rather longer than the head and pronotum in the female, ensiform; frontal ridge sulcated, diverging below; vertex and rostrum separated by a depression roundly subangulate in front. Pronotum tricarinate, the lateral carinæ slightly divergent behind, cut by two distinct sulci, the first about the middle, the second at about two-thirds of its length; hind border obtusely rounded, space behind the last sulcus rather finely punctured. Tegmina long, pointed, hyaline, the nervures rufous,

the costal area yellowish green; wings hyaline, with brown nervures, the nervures in the costal area rufous; wings pointed, rather shorter than the tegmina. Abdomen blackish brown, or towards the extremity reddish brown; sides and under surface yellowish green, with three dark transverse bands near the base before the incisions. Front legs brown, hind legs mostly green; hind tibiæ green or red, with 17–20 spines. Male with the supra-anal lamina oblong lanceolate, and the cerci compressed; the subgenital lamina small, obtusely pointed.

Length 20–46 mm.; tegmina, 20–39 mm.

MADRAS: Madura, Kodaikanal; CEYLON.

Type in the British Museum.

261. **Gelastorrhinus albolineatus**, *Brunn.*

Gelastorrhinus albolineatus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 158, pl. v, fig. 54.

Pale fulvo-testaceous. Fastigium of the vertex shorter than the eye, separated from the vertex by an arched sulcus: antennæ inserted somewhat above the eyes, ensiform, as long as the head and pronotum together; front (viewed laterally) slightly sinuated. Pronotum above smooth, tricarinated, fulvo-testaceous, marked with a browner longitudinal band on each side, the deflexed lobes pale green. Tegmina longer than the abdomen, fulvo-testaceous, distinctly browner towards the radial nervure, which is black at the base, and contiguous to an ivory-white longitudinal stripe. Hind femora above acutely carinated, terminating in two rather long lobes; hind tibiæ with from 15 to 20 spines in the outer carina.

Length 54 mm.; tegmina, 41 mm.

BURMA: Bhamo.

Type in the Genoa Museum.

262. **Gelastorrhinus selache**, *Burr.*

Gelastorrhinus selache, Burr, Trans. Ent. Soc. Lond. 1902, pp. 181, 182.

Green, varied with red. Rostrum separated from the vertex by a curved sulcus, eyes red, a red stripe running from the eyes across the cheeks and along the lateral carinæ of the pronotum and the radial area of the tegmina; antennæ long, much longer than the head and pronotum together. Pronotum smooth, lateral lobes with the front and hind margins oblique and sinuated, the lower border nearly straight. Tegmina long, comparatively broad, hyaline, with the radial nervure reddish towards the base; wings shorter than the tegmina, hyaline, slightly suffused with fulvous at the base.

Length 47–60 mm.; tegmina, 34–54 mm.

SIKKIM.

Type in the collection of Brunner von Wattenwyl.

Genus LEFROYA, nov.

Type, *Lefroya acutipennis*, sp. nov.

Range. Bengal.

Head very long, the rostrum in front of the eyes longer than the pronotum; the hinder part of the head from the front level of the eyes rather shorter than the pronotum; head and pronotum finely carinated throughout, the carina on the head slightly tectiform; face very long, frontal ridge narrow, shallowly sulcated throughout, and slightly expanding towards the extremity, the median ocellus on a level with the front of the eyes, which are large and oval; antennæ with the scape large and rounded, the second joint small and annular, the rest broadly ensiform and flattened towards the base, tapering whip-like towards the tip, and longer than the head and pronotum together; behind the antennæ run straight lateral carinæ below the eyes. Sternal tubercle small, inclining slightly backwards. Tegmina and wings hyaline, long, narrow and pointed; tegmina longer than the wings, which are as long as or longer than the abdomen. Front and middle legs very short, hind legs slender, hind femora not much thickened at the base; hind tibiæ very slender, with about 10 small spines on the outer and 16 on the inner carina; no terminal spine on the upper outer carina.

263. **Lefroya acutipennis**, sp. nov.

Brown or reddish brown, abdomen and legs reddish; a yellowish stripe more or less visible from behind each antenna running below the eyes and along the lower lateral borders of the head and pronotum. Hind tibiæ and tarsi red; tegmina very long, narrow, and pointed, hyaline with rufous nervures; wings narrow, pointed, shorter than the tegmina, hyaline, with fuscous nervures, except along the costa, where the nervures are rufous.

Length 32–55 mm.; tegmina, 27–43 mm.; wings, 23–33 mm.

Bengal: Pusa.

Type in the Agricultural Research Institute, Pusa.

Genus WACATA, nov.

Type, *Wacata ceylonica*, sp. nov.

Range. Ceylon.

Vertex horizontally produced before the eyes, as long as the eyes, rather longer than broad, subcarinate above, and obtusely rounded at the extremity; face very long and sloping, median carina sulcated throughout, slightly expanding below; antennæ rather thick, very slightly tapering, longer than the head and pronotum, and obtuse at the extremity. Body long, slightly compressed, apterous; abdomen slightly carinated above in the female; prosternal tubercle small. Front and middle legs very short, hind legs long, hind tibiæ with no outer terminal spine.

Fig. 123.
Wacata ceylonica.

264. **Wacata ceylonica**, sp. nov.

Olive - brown, antennæ greenish or yellowish, transversely banded with brown in the female; body long, finely granulated; behind the eye runs a black band dotted with white, nearly to the extremity of the abdomen; legs green.

Ceylon: Maha Illupulana, 31.viii.1910, Trincomali, ix.1911.

Type in the British Museum.

Genus MESAMBRIA.

Mesambria, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 28, 72.

Type, *Mesambria geniculata*, Stål.

Range. India, Ceylon, Celebes, Madagascar.

Head as broad as the pronotum; eyes very large and prominent, frequently projecting beyond the level of the pronotum; fastigium smooth, scarcely closed at the extremity, and very slightly carinated; antennæ filiform, sometimes slightly thickened beyond the middle, rather longer than the head and pronotum; frontal ridge sulcated, slightly projecting between the antennæ. Pronotum rather longer than the head, generally more or less rugose, the hinder sulcus placed much behind the middle, the hind border truncated; the middle carina extending over the pronotum and abdomen, and sometimes over the head, lateral carinæ obsolete. Tegmina rudimentary, lateral, as long as the first segment of the abdomen. Hind femora thickened, about as long as the abdomen, hind tibiæ with 6 to 8 strong spines.

Key to the Species.

1	(4)	Colour testaceous.	
2	(3)	Abdomen with a continuous dark unspotted lateral band........	*nepalensis*, Walk., p. 224.
3	(2)	Abdomen with a dark lateral band bearing pale spots above	*geniculata*, Stål, p. 223.
4	(1)	Colour dark brown.	
5	(6)	Eyes pale yellow behind........	*tarsalis*, Walk., p. 222.
6	(5)	Eyes of nearly uniform colour.	
7	(10)	A slender yellow line above the eye.	
8	(9)	A distinct yellow band below the eyes, face above and below blackish	*dubia*, Walk., p. 221.

9 (8) Face yellow, mottled with black. *cinctifemur*, Walk., p. 222.
10 (7) No yellow line bordering the eyes........................ *scabra*, Walk., p. 221.

265. Mesambria scabra, *Walk.*

Caloptenus scaber, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 707.

Dark brown, with blackish markings. Head with the carinæ between the eyes above parallel, not expanded but truncated at the end of the fastigium; frontal ridge sulcated, slightly punctured above, the carinæ and also the lateral carinæ nearly straight; a broad and irregular, but rather indistinct and ill-defined, black stripe running behind the eyes over the sides of the pronotum and abdomen, and on this, on the middle lobe of the pronotum, stands a very large round depression. Pronotum and abdomen with a strongly marked median carina, and with very large and crowded depressed punctures, becoming smaller posteriorly; sides and under surface of pronotum and abdomen paler than above. Tegmina narrow, parallel-sided, roundly truncate at the extremity, blackish on the costal half, and testaceous behind, extending to the end of the first segment of the abdomen. Hind femora thick, as long as the abdomen, with two indistinct brown transverse bands above, and black mottling on the lateral areas; knees blackish on the sides; tibiæ testaceous, with 7 black spines on the outer and 8 on the inner carina; prosternal spine short, thick, pyramidal.

Length 23 mm.; tegmina, 4 mm.

BENGAL: Bardwan.

Type in the British Museum.

266. Mesambria dubia, *Walk.*

Acridium dubium, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 632.

Dark brown, mottled with blackish; head, pronotum, and abdomen above with large rugose anastomosing punctures. Fastigium of vertex triangularly expanded before the eyes, frontal ridge sulcate, the carinæ approximating above and slightly divergent below, the suture punctured, lateral carinæ nearly straight, not prominent; head blackish above and below, a narrow pale line running from the back of the head round the upper part of each eye to the base of the antennæ, a wide testaceous band running below each eye across the front and sides of the head, and the palpi also pale; antennæ tawny to the middle, with long blackish spots, and blackish beyond the middle. Prosternal tubercle short, conical. Tegmina blackish, very short

and narrow, hardly extending beyond the middle of the first segment of the abdomen. Legs testaceous; hind femora moderately thickened, longer than the abdomen; hind tibiæ curved, pale green, brown at base and tip, with 6 or 7 brown-tipped spines.

Length 18 mm.; tegmina, 2 mm.

CEYLON.

Type in the British Museum.

267. **Mesambria tarsalis**, *Walk.*

Acridium tarsale, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 632.

Dark brown, thickly punctured over the whole of the upper surface; median carina slight on the head, well marked on the pronotum and abdomen. Fastigium of the vertex triangularly expanded in front of the head, frontal ridge sulcated, rather more broadly below than above, lateral carinæ nearly straight; eyes with a yellow crescent-mark behind, and behind this a broad black band hardly extending to the back of the head; antennæ black, with long yellow spines to the middle. Pronotum with the hinder lobe testaceous. Legs dull green; hind femora moderately thickened, as long as the abdomen, knees blackish; hind tibiæ brighter green, except at the base, which is blackish, with an ivory-white spot above, and with 7 black-tipped spines on the inner and 6 on the outer carina; hind tarsi blackish, first joint testaceous. Abdomen blackish, sides with testaceous bands on the incisions; anal appendages of female very large, hooked upwards and downwards at the tips, and dentated on both sides within. Tegmina very narrow, linear, extending nearly to the extremity of the first segment of the abdomen.

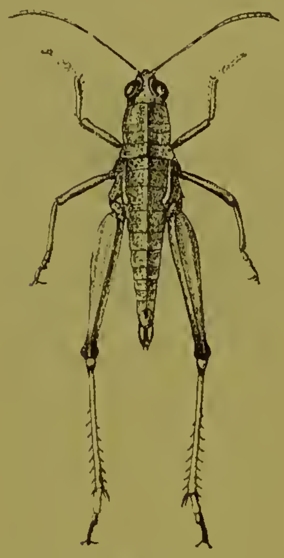

Fig. 124.
Mesambria tarsalis.

Length 28 mm.; tegmina, 5 mm.

CEYLON.

Type in the British Museum.

This species is not improbably the female of *M. dubia.*

268. **Mesambria cinctifemur**, *Walk.*

Acrydium cinctifemur, Walker, Ann. Nat. Hist. (3) iv, 1859, p. 223.

Walker's description reads, "Fawn-colour, varied with black,

tuberculate, testaceous beneath. Head and antennæ mostly black. Legs with black bands. Hind femora of the usual structure; hind tibiæ glaucous, black and testaceous towards the base. Fore wings black, varied with testaceous. Hind wings grey. Length of the body 10 lines."

The specimen bearing the name, and the ostensible type, is a female, without antennæ and with only one perfect middle leg. It is blackish above, with large depressed punctures; the fastigium triangularly expanded before the eye, and a median carina traversing the head, pronotum, and abdomen. The head below the eyes, a line behind them, and the greater part of the face are testaceous, the latter blackish at the sides above and below, and the spaces between the fore carinæ shallow, and much pitted: palpi yellow. The under surface of the body and middle legs are testaceous; the back and sides of the abdomen are black, but 3 or 4 of the sutures are yellowish, with irregular yellowish markings on the sides between them; the abdominal appendages of the female are slightly hooked at the tips, but not dentated. The tegmina are brownish hyaline, somewhat expanded towards the extremity, and extend nearly to the end of the first segment of the abdomen.

Length 26 mm.; tegmina, 4 mm.

Type (?) in the British Museum.

It is very doubtful whether this is the insect described by Walker, but it appears to be distinct from others on our list.

269. Mesambria geniculata, *Stål.*

Mesambria geniculata, Stål, Bih. Svensk. Akad. Handl. v (4) 1878, p. 73.

Lighter or darker olive-brown. Antennæ long, more or less black towards the extremity; fastigium of vertex short, triangular, frontal ridge narrow, the suture contracting below the eye, and slightly widening again, the lateral carinæ indistinct; face and sides of head below the eyes yellowish, mouth-parts varied with black, palpi white. Upper surface of body granulose, with a continuous median carina; abdomen with a more or less distinct black band on each side, sometimes spotted with yellow above. Legs testaceous or reddish, the knees, base, and tips of tibiæ blackish; hind femora in the female blackish on the outer and inner areas; hind tibiæ with 6 or 7 large black-tipped spines. Tegmina brown, linear, extending to the extremity of the first segment of the abdomen.

Length 18–29 mm.; tegmina, 4–5 mm.

CEYLON.

Type in the Stockholm Museum.

270. **Mesambria nepalensis,** *Walk.*

Caloptenus nepalensis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 707.

Testaceous, stout. Fastigium of vertex short, triangular, frontal ridge rather broad, hardly sulcated and slightly punctured, vertex very slightly carinated, pronotum and abdomen more distinctly; behind each eye is a black line extending to the front of the pronotum. On a level with the lower part of the eye is an oblique black stripe on the sides of the pronotum, hardly indicated on the hinder lobe, but continued on the pleura below the tegmina; and beyond the first segment of the abdomen is a continuous black lateral stripe. Tegmina hyaline, moderately broad, extending to the end of the first segment of the abdomen. Hind knees marked with black on the sides, hind tibiæ with 8 or 9 black-tipped spines.

Length 20 mm.; tegmina, $3\frac{1}{2}$ mm.

NEPAL.

Type in the British Museum.

Genus ORTHACANTHACRIS.

Orthacanthacris, Karsch, Stettin. Ent. Zeit. lvii, 1896, p. 303.
Locusta, Karny (Linn. pt.), Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi, 1907, p. 304.

TYPE, *Cyrtacanthacris humilicrus,* Karsch, from E. & W. Africa.

Range. Europe, Africa, W. Asia, India, Ceylon.

Size large. Front perpendicular, vertex depressed, bordered with carinæ in front of the eyes, passing insensibly into the suture of the frontal ridge, which is slightly contracted above and below the antennæ, and is punctured between them; antennæ longer than the head and pronotum. Pronotum with a strong median carina, cut by the usual transverse sutures, the hind suture placed about the middle, punctured, the hind border rectangular, with the point rounded off, hind lobe thickened; tegmina and wings long or very long; hind femora thick, rather shorter than the abdomen.

Key to the Species.

[1	(6)	Wings not red at the base.	
2	(5)	Wings banded with black.	
3	(4)	Wings hyaline, with a broad black band before the middle	*ægyptia,* L., p. 225.
4	(3)	Wings pale yellow towards the base, with a black band towards the hind border	*flavescens,* F., p. 225.
5	(2)	Hind wings not banded with black, violaceous at base	*violascens,* Walk., p. 229.
6	(1)	Wings red at the base.	

7	(10)	Hind femora banded with black and yellow.	
8	(9)	Antennæ black	*nigricornis*, Burm., p. 228.
9	(8)	Antennæ pale	*vinosa*, Walk., p. 228.
10	(7)	Hind femora not banded.	
11	(12)	Size large; wings brighter red at base	*succincta*, L., p. 227.
12	(11)	Size moderate; wings dull red at base	*japonica*, Bol., p. 229.]

271. **Orthacanthacris ægyptia**, *L.*

Gryllus Locusta ægyptius, Linnæus, Mus. Ludov. Ulric. 1764, p. 138.

Reddish-grey, tegmina with indistinct brown annular marks towards the base, and short black dashes on the nervures towards the extremity; slightly subhyaline, especially towards the tips; wings nearly as long as the tegmina, at least twice as long as broad, hyaline, with a black semicircular band, varying in width, extending from the base of the costa to about the middle of the wing, and inwardly to the inner margin. Hind femora with more or less distinct transverse black bands above, interrupted black lines on the outer carinæ, and the inner surface red; hind tibiæ dull violet with 8–11 large white black-tipped spines. Prosternal tubercle straight, conical.

Length 32–66 mm.; expanse of tegmina, 87–130 mm.

A common species throughout the Mediterranean Region; and as it occurs at Quetta, it almost certainly crosses the north-western frontiers of India.

272. **Orthacanthacris flavescens**, *F.*

Gryllus flavescens, Fabricius, Ent. Syst. ii, 1793, p. 52.
Gryllus Locusta crucifer, Stoll, Spectres, Saut. 1813, p. 30, pl. 146, fig. 51.
Acridium semifasciatum, Serville, Ins. Orth. 1839, p. 655.
Acridium pardalinum, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 587.

Head yellowish above and behind the eyes, with two blackish bands sloping backwards from between the eyes; the front depressed, black, with a red mark in the middle, and passing into the frontal ridge, which is blackish, moderately broad, sulcated and punctured, with parallel sides, the face varied with black and red. Antennæ black, longer than the head and pronotum together. Pronotum strongly carinated, black, slightly varied with reddish, and spotted with pale yellow on the sides of the front lobes; the hind lobe slightly expanded, black, punctured, with longitudinal reddish lines; the rest of the body greenish brown. Tegmina long, yellowish grey, subhyaline, with brown nervures and a row of spots near the extremity below the costa, and with indistinct dusky markings formed by thickened nervures

into irregular and indistinct transverse bands. Wings pale greenish yellow at the base, brownish hyaline beyond the middle, with scattered black spots towards the upper and outer parts of the wing irregularly arranged in broken longitudinal rows; towards the hinder angle the yellow part of the wing is bordered

Fig. 125.—*Orthacanthacris flavescens.*

by a smoky marginal band darker than the outer part of the wing. Hind femora whitish, with longitudinal and transverse nervures reddish, the longitudinal ones interrupted by broken black lines; genicular lobes large, white below; legs otherwise mostly olive-green; the hind tibiæ with 8 outer and 10 inner red black-tipped spines.

Length 65 mm.; expanse of tegmina, 140–150 mm.

MADRAS; CEYLON.

Fig. 125 is taken from the type of *O. pardalinum*, Walk.

273. **Orthacanthacris succincta**, *L.*

Gryllus Locusta succinctus, Linnæus, Amœn. Acad. vi, 1763, p. 398.
Cyrtacanthacris fusilinea, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 564 (bleached).
Acridium elongatum, Walker, op. cit. iii, 1870, p. 636 (bleached).

Tegmina and wings very long; head, pronotum, and abdomen (in fresh specimens) varied with light greenish yellow and brown. Scutellum of the vertex short and expanded in front of the eyes, rendering it sometimes almost circular; frontal ridge nearly

Fig. 126.—*Orthacanthacris succincta.*

straight and moderately broad, sulcated and punctured, the lateral carinæ nearly straight and very prominent; eyes oval; the face yellow, with brown stripes over the carinæ, and below the eyes; a broad band runs over the vertex within each eye, and curves down along the back of the head; antennæ yellow. Pronotum very coarsely punctured, brown, with a broad median yellow

stripe, continuous with that of the head, over the carina; it is narrowly bordered with yellow before and behind, and more broadly below; on the sides are two short parallel yellow stripes on a blackish ground, hardly extending beyond the hind suture. Abdomen brown above, with a row of long yellowish spots bordering the median carina on each side; under surface pale. Tegmina subhyaline, with a yellow basal stripe on the costa; the centre is filled up with brown and yellow quadrangular or oval spots, and on the apical third the nervures are marked with black streaks. Wings smoky hyaline, strongly tinged with purplish red on the basal half. Legs dark brown; hind femora yellow, obliquely lined with brown on the outer surface; hind tibiæ with 8 to 10 white black-tipped spines.

The dark markings of the tegmina vary considerably, and are sometimes nearly obsolete.

Length 50–62 mm.; expanse of tegmina, 116–135 mm.

India; Ceylon; China; Sumatra; Java; Borneo.

274. **Orthacanthacris nigricornis**, *Burm.*

Acridium nigricorne, Burmeister, Handb. Ent. ii, 1838, p. 629.
Acridium melanocorne, Serville, Ins. Orth. 1839, p. 659.

Body varied with black and yellow; antennæ black. Scutellum of the vertex only slightly depressed, frontal ridge nearly straight, sulcated, smooth; head yellow, face with narrow black vertical stripes within the eyes, and behind them runs a broad black band on each side of the median yellow stripe across the head and thorax; behind each eye is an oblique yellow stripe, and towards the extremity of the pronotum the black is bisected on each side with yellowish. Pronotum coarsely punctured, the sides yellow, marked with small black spots. Abdomen dull yellow, more or less suffused with blackish. Tegmina dull yellow, subopaque, more or less blackish towards the base; wings smoky hyaline, with the base tinged with red. Legs blackish, hind femora with broad yellow spaces spotted with black, hind tibiæ with 8–11 yellow black-tipped spines, hind tarsi red.

Length 43–55 mm.; expanse of tegmina, 90–127 mm.

S. India; Malay States; Java, etc.

275. **Orthacanthacris vinosa**, *Walk.*

Acridium vinosum, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 588.

Almost uniform reddish brown, slightly varied with pale yellow behind the eyes and on the sides of the pronotum; antennæ yellowish. Scutellum of the vertex hardly depressed, frontal ridge only slightly sulcated, comparatively broad, thickly punctured throughout, and slightly narrowed at the ocellus; lateral carinæ slightly oblique. Pronotum thickly punctured, narrowly streaked with yellowish on the hind border. Tegmina

brown, subopaque; wings brownish hyaline, with the base red. Legs brown, hind femora banded with lighter and darker brown, and whitish on the sides; hind tibiæ with 8–11 whitish black-tipped spines.

Length 50–64 mm.; expanse of tegmina, 94–120 mm.

North Bengal; China.

Type in the British Museum.

276. **Orthacanthacris violascens,** *Walk.*

Acridium violascens, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 587.

Light brown, with a yellow stripe running from the fastigium of the vertex over the pronotum and the suture of the closed tegmina; in some specimens this is red. Antennæ yellow, or red, and there are also red lines (sometimes obsolete) below the antennæ, in the suture of the frontal ridge, and along the hind borders of the head and pronotum. Fastigium of the vertex slightly expanded, and bordered with black lines running to the back of the head; frontal ridge moderately broad, punctured above, and sulcated and slightly expanded below the ocellus. Pronotum coarsely punctured, sometimes distinctly darker on the sides of the yellow stripe above, and sometimes with one or two indistinct yellow spots on the side. Tegmina brown, with the inner margin yellow; wings smoky hyaline, tinged towards the base with pale violet. Legs brown, with red tarsi; hind femora with the outer and inner lobes whitish, with oblique brown lines; all the carinæ spotted with black, knees marked with black, with the lobes large and white, or yellow; hind tibiæ with 8–10 large yellow black-tipped spines.

Length 40–56 mm; expanse of tegmina, 70 110 mm.

Ceylon.

Type in the British Museum.

277. **Orthacanthacris japonica,** *Bol.*

Acridium japonicum, Bolivar, Ann. Mus. Genova, xxxix, 1898, p. 98.

Light reddish brown; antennæ pale yellow, darker at the tips; a pale yellow stripe running from the fastigium of the vertex over the pronotum and the suture of the closed tegmina. Frontal ridge rather constricted in the middle, slightly sulcated, and punctured above and below; a broad blue-black stripe below each eye. Pronotum punctured, the sides bifasciated and bordered below with pale yellow, separated by blackish spaces. Hind knees darker, hind femora with 8–11 pale black-tipped spines. Tegmina subhyaline, brown towards the base, and spotted with brown longitudinally along the middle; wings brownish hyaline, tinged with red at the base. In many specimens, especially

females, the head and pronotum are almost uniform brown, and a curved black line crosses the vertex within each eye.

Length 35–45 mm.; expanse of tegmina, 68–90 mm.

N.W. Frontier Province; Sikkim: Gantok; Japan.

Genus CYRTACANTHACRIS.

Cyrtacanthacris, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 550.
Acrydium, pt., Olivier, Encycl. Méth., Ent. vi, 1791, p. 209.
Acridium, Serville, Ann. Sci. Nat. xxxi, 1831, p. 282.

Type, *Gryllus Locusta ranaceus*, Stoll.

Range. Oriental Region.

Differs essentially from *Orthacanthacris* in the prosternal tubercle being very long and recurved.

Fig. 127.—*Cyrtacanthacris rosea.*

Key to the Species.

Hind wings red at base .... *rosea*, De Geer.
Hind wings not red at base .... *ranacea*, Stoll.

278. **Cyrtacanthacris rosea,** *De G.*

Acrydium roseum, De Geer, Mém. Ins. iii, 1773, p. 488, n. 3, pl. 41, fig. 1.
Gryllus flavicornis, Fabricius, Mant. Ins. i, 1787, p. 237.
Cyrtacanthacris lutescens, Walker, Cat. Derm. Salt. B. M. iii, 1870, p. 566 (bleached).
Cyrtacanthacris fortis, Walker, l. c. 1870, p. 567.

Green; antennæ yellow. Scutellum of the vertex hardly depressed; frontal ridge punctured above, smooth and sulcated below, with parallel sides. Pronotum strongly rugose, with the median carina forming a strong ridge. Tegmina green, rather broad, obtusely and roundly truncate at the tips; wings greenish hyaline, with the basal half tinged with red. Hind femora green, or with the sides yellower; hind tibiæ and tarsi purplish red, the former with 9–11 yellowish spines, which have the extreme tips black.

Length 45–80 mm.; expanse of tegmina, 105–165 mm.

ASSAM: Sylhet; CHINA; JAVA; PHILIPPINES, etc.

279. **Cyrtacanthacris ranacea,** *Stoll.*

Gryllus Locusta ranaceus, Stoll, Spectres, Saut. 1813, p. 30, pl. 11 *b*, fig. 53.
Cyrtacanthacris inficita, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 565 (discoloured).

Reddish brown, mixed with yellowish or whitish. Antennæ yellow; head pale, with brown or blackish vertical lines below the eyes and bordering the carinæ; frontal ridge sulcated, with the borders slightly undulating, smooth in the male, punctured above and on the sides in the female; eyes bordered behind with black or brown, a pale median stripe running from the scutellum of the vertex over the pronotum and the suture of the tegmina. Pronotum with fine scattered raised whitish granules, and the hinder lobe punctured in the female; red, with the median carina and the borders pale, and a pale band on the side, which is much expanded and with dusky punctures on the hinder lobe. Abdomen and legs reddish; hind femora with the outer central area whitish, the knees marked with black; hind tibiæ with 6–8 whitish spines with dusky tips. Tegmina yellowish subhyaline, with a row of dark spots along the costa, and many irregular spaces on the median area bounded and reticulated with brown; wings dusky hyaline, slightly tinged with yellowish towards the base.

Length 45–55 mm.; expanse of tegmina, 82–112 mm.

ARABIA; MADRAS: Conoor, Nilgiris; CEYLON; SIAM.

Genus SCHISTOCERCA.

Schistocerca, Stål, Recens. Orth. i, 1873, p. 64.

Type, *Gryllus Locusta tataricus*, L. (*Acridium peregrinum*, Oliv.).

Range. America, S. Europe, Africa, Western and Southern Asia.

General characters of *Orthacanthacris*, but the cerci of the male are rather short, compressed, and laminated, and the subgenital lamina is triangularly emarginate; in the female the cerci are short and pointed, and the lower valves of the ovipositor are not dentated at the base; hind tibiæ with about 8 spines on the outer and 11 on the inner carina.

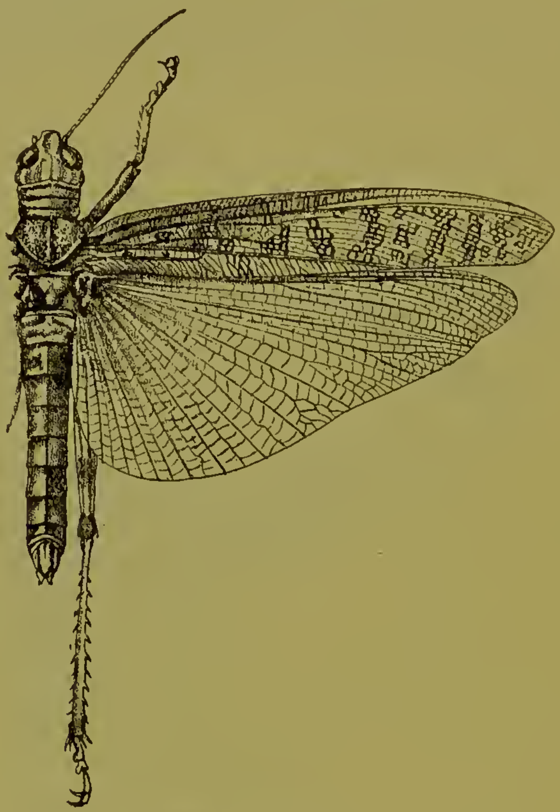

Fig. 128.—*Schistocerca tatarica.*

280. Schistocerca tatarica, *L.*

Gryllus Locusta tataricus, Linnæus, Syst. Nat. (ed. x.) i, 1758, p. 432.

Acridium peregrinum, Olivier, Voy. Emp. Othom. iv, 1804, p. 388, note.

Gryllus migratorius ξ, Thunberg, Mém. Sc. Pétersb. v, 1815, p. 244.

Gryllus rufescens, Thunberg, l. c. 1815, p. 245.

Acridium flaviventre, Burmeister, Handb. Ent. ii, 1838, p. 631.

Acridium sellatum, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 585.

Yellow or red, the face sometimes marked with vertical dusky or blackish lines; frontal ridge smooth, only slightly sulcated, sometimes a median pale line with a darker border runs from the fastigium of the vertex over the pronotum. Pronotum thickly punctured, expanded and rounded behind. Tegmina long, sub-hyaline, covered with irregularly transverse brown reticulate spots; wings more than twice as long as broad, hyaline, often slightly stained with yellow or red at the extreme base. Hind knees marked with blackish.

Length 40–62 mm.; expanse of tegmina, 100–140 mm.

SIND; NEPAL; ASSAM; CEYLON; MEDITERRANEAN REGION; WESTERN ASIA; SOUTH and CENTRAL AMERICA.

Linnæus confounded several species under the name *tatarica*; but the present species appears to be the best entitled to retain the name.

Genus **PELECINOTUS.**

Pelecinotus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 619.

TYPE, *Pelecinotus brachypterus*, Bol.

Range. S. India.

Vertex very broad, and sloping to the vertical front; frontal ridge very broad between the antennæ, suddenly narrowed before the ocellus, and with the margins subparallel as far as the clypeus; antennæ filiform, rather thick in the male, and slender in the female. Pronotum rather short in front, long and pointed behind, the hinder lobe shorter than the front lobe; the back compressed and cristate throughout its whole length, the crest more or less excavated, not interrupted by the sulci, which are obsolete on the summit of the crest. Tegmina rudimentary, short, broad, lateral, lanceolate; wings obsolete. Legs thick; femora with the outer dorsal area very broad, with the carinæ spinose; hind tibiæ with the inner and outer rows of spines extending equally far towards the base.

Key to the Species.

Head rugose; pronotum with large depressed black punctures laterally	*brachypterus*, Bol.
Head smooth; pronotum with the crest more raised and without black punctures	*cristagalli*, Bol.

281. Pelecinotus brachypterus, *Bol.*

Pelecinotus brachypterus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 620, pl. ix, fig. 35.

Green. Head rugose, vertex almost perpendicular, slightly sloping; antennæ brown towards the tips. Pronotum sharply tectiform, short in front, pointed behind, the median carina compressed, smooth; viewed laterally, obtusely arched in the male, straight or slightly sinuated in the middle in the female, arched in front, and excavated behind, the sides with large black depressed

punctures, the hind sulcus behind the middle of the pronotum, the front area sparingly tuberculate, the hinder area thickly rugose-punctate, the hind border thickened, often yellow. Tegmina rudimentary, lanceolate, as long as the hind lobe of the pronotum; wings very short. Hind femora spinose above and below, the outer carina with obtuse tubercles; hind tibiæ red in the male and yellow in the female, with black-tipped spines. Supra-anal lamina in the male triangularly produced, pointed; in the female rather compressed, with the tip obtuse; subgenital lamina of the male compressed, carinated, and pointed.

Length 20–40 mm.; pronotum, 11·5–20 mm.; tegmina, 6–10 mm.; hind femur, 13–19 mm.; hind tibiæ, 12 mm.

MADRAS: Kodaikanal.

Types in the collections of Pantel and Bolivar.

282. Pelecinotus cristagalli, *Bol.*

Pelecinotus cristagalli, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 620, pl. ix, fig. 36.

Resembles the last-named species, but the head is smooth, not rugose; the frontal carinæ are scarcely raised and almost interrupted at the ocellus. The crest of the pronotum is much raised and arched, crenulated but only slightly compressed, and not punctured with black on the sides, the hind border broadly whitish, with the hinder angle pointed, but the lower part of the tip obtuse. Hind tibiæ long.

Length 21 mm.; pronotum, 12 mm.; tegmina, 5 mm.; hind femur, 14 mm.; hind tibiæ, 14 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

Genus TERATODES.

Teratodes, Brullé, Hist. Ins. ix, 1835, p. 222.

TYPE, *Gryllus monticollis*, Gray.

Range. India, Ceylon.

Body stout; head broad, rounded above, face vertical; frontal ridge very shallow, parallel-sided from the ocellus to the clypeus, but the carinæ diverging above to the antennæ; antennæ short, filiform, rather thick, widely separated at the base, with indistinct joints. Pronotum raised, large, sublaminately compressed, the front arched above the head in a point, the middle forming a high crest, denticulated, especially behind, and covering half the length of the abdomen; the sides granulated, the extreme tip pointed and curved up. Prosternal tubercle pointed. Legs rather short; hind femora with short spines on the upper carinæ, and longer ones below; hind tibiæ with 9 or 10 very strong spines. Tegmina opaque, longer or shorter than the abdomen; wings hyaline.

283. **Teratodes monticollis**, *Gray.*

Gryllus monticollis, Gray, Griffith's Anim. Kingd. xv, 1832, p. 215, pl. 64.

Almost uniform green; the following portions are generally yellow, or occasionally reddish:—the antennæ, a line on the whole crest of the pronotum, the upper carinæ of the hind femora and an arch on the knees, and the lower carinæ and spines of the hind tibiæ. Within the outer upper carina of the femora is sometimes a row of pale spots. Tegmina opaque, uniform green, very thickly reticulated; wings pale greenish hyaline.

Length 35–65 mm.; pronotum, 25–45 mm.; expanse of tegmina, 62–95 mm.

Bombay; Ceylon.

Type in the British Museum.

Genus **BIBRACTE.**

Bibracte, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 27, 71.

Type, *Acridium hagenbachi,* De Haan.

Range. S. India, Indo-Malayan Islands.

Body stout; fastigium of the vertex projecting considerably between the antennæ, face sloping; antennæ long, pointed at the tips; pronotum with the median carina and the transverse sutures nearly obsolete; tegmina and wings variable; hind femora moderately stout.

284. **Bibracte rugulosa**, *Bol.*

Bibracte rugulosa, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 620.

Ferruginous brown. Front coarsely impress-punctate. Pronotum obtusely sinuated behind, with the back rugose, obtusely tectiform, the hind sulcus placed much behind the middle, the deflexed lobes subangulated, the inner half rather shining, impress-punctate; before the hinder angle somewhat concave, thickly impress-punctate behind. Tegmina rudimentary, shorter than the pronotum, with the inner margin straight, and the outer margin very convex before the tip. Hind femora red beneath; hind tibiæ red, with yellow spines tipped with black. Supra-anal lamina somewhat compressed, sulcate above at the base.

Length 24 mm.; pronotum, 6 mm.; tegmina, 4 mm.; hind femur, 4 mm.

Madras: Kodaikanal.

Type in the collection of M. Pantel.

Genus BIBRACTOIDES, nov.

Type, *Acridium punctorium*, Walk.

Range. South India.

Head rugosely punctate; front prominent, considerably produced between the antennæ, and rounded into the frontal ridge, which is very narrow, sulcated, and parallel-sided throughout, the lateral carinæ also nearly straight; antennæ filiform. Pronotum rugosely punctate, with raised granules, the median carina forming a ridge, cut by only two distinct sulci, the hindmost beyond the middle, hind border truncate-sinuate. Prosternal tubercle pointed, mesosternal lobes transverse. Tegmina shorter than the abdomen, expanded on the costa, and obliquely and roundly truncate at the tips; wings two-thirds as long as the tegmina, with the costal area produced and rather pointed at the tip; the hind margin deeply and roundly concave. Hind femora thickened at the base, finely serrated above, and granulated on the outer surface; hind tibiæ with 8–9 spines.

285. Bibractoides punctoria, *Walk.*

Acridium punctorium, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 630.

Brown, very rugose, with black granules, colour paler behind the eyes, on the sides of the pronotum, and towards the costa and apex of the tegmina. Antennæ tawny, slightly flattened, brownish towards the tips. Tegmina spotted all over with brown, the spots being formed of short connected streaks on the nervures, frequently transverse or oblique; wings yellowish, with reddish nervures. Abdomen pale, with the hinder segments distinctly punctured. Hind femora pilose, pale, with ill-defined brown markings, the inner and under surfaces, as well as the hind tibiæ and tarsi, red.

Length 25 mm.; tegmina, 18 mm.; wings, 15 mm.; hind femur, 18 mm.

S. India.

Type in the British Museum.

Genus ALECTOROLOPHUS.

Alectorolophus, Brunner, Abh. Senckenb. Ges. xxiv, 1898, p. 244.

Type, *Alectorolophus speciosus*, Brunn.

Range. India (?), Celebes, Lombok.

Fastigium of the vertex strongly narrowed in front, and projecting considerably between the antennæ, frontal ridge obsolete; pronotum with a high lobate and serrate crest; tegmina and wings rudimentary or wanting.

286. **Alectorolophus bimaculatus**, sp. nov.

Stout, very rugose, brown, subapterous. Pronotum narrowed in front, expanded behind, with a high, quadrilobate serrated crest, deeply cut between the lobes by the sulci, and the hind border denticulated; the lateral carinæ are also lobate and denticulated. The mesonotum is covered by what resembles rudimentary tegmina, soldered in the middle and concave behind, and

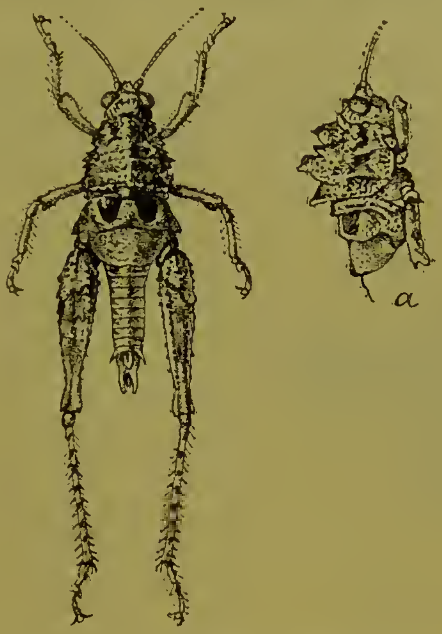

Fig. 129.—*Alectorolophus bimaculatus.*
a. Side view of thorax.

marked on each side by a large irregular black spot. Hind femora denticulated on the carinæ, and marked with numerous black granules; the median carina forms a strong spear-like projection above the knee; hind tibiæ about as long as the femora, with about 9 spines on the carinæ.

Length 30 mm.; hind femur, 20 mm.

SIKKIM (?)

Type in the British Museum.

Genus APALACRIS.

Apalacris, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 641.

TYPE, *Apalacris varicornis*, Walk.

Range. N. India.

Body slender. Head and thorax rugose; frontal ridge narrow, a little wider between the antennæ than the vertex between the eyes, gradually but very slightly narrowed to the clypeus, slightly constricted midway, somewhat grooved and punctured from the

ocellus to within a short distance of the clypeus; antennæ very long, filiform. Tegmina extended beyond the apex of the hind femora, slightly oblique and obtuse at the apex, but not truncate; wings with comparatively few transverse nervures. Prosternal tubercle small, acute.

287. **Apalacris varicornis**, *Walk.*

Apalacris varicornis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 642.

Head and pronotum above of a slightly reddish brown; front finely punctured, frontal ridge sulcated, narrow, with parallel carinæ, lateral carinæ also straight; antennæ very long, the basal fourth reddish, the rest black, except the last five segments, which are yellowish, tips pointed. Pronotum punctate-granulate, with the median carina and the three sulci slightly marked, the last rather beyond the middle, the hinder extremity almost rectangular, but truncated at the tip. Under surface of body and sides of abdomen yellow, abdomen shining black above. Tegmina testaceous, subhyaline towards the tips, where they are only slightly oblique; wing nearly as long as the tegmina, hyaline, with brown nervures. Prosternal tubercle pointed. Front and middle legs yellowish brown; front tarsi blackish, with a rather strong spine at the extremity of the first joint; hind legs yellowish, the femora with three oblique black bands connected by a black line along the lower outer carina, and with a curved black line on each side of the knees, hind femora very finely denticulated above; hind tibiæ slightly pubescent, with 9 or 10 rather small black-tipped spines.

Fig. 130.—*Apalacris varicornis.*

Length 18 mm.; expanse of tegmina, 35 mm.

North India.

Type in the British Museum.

Genus **COPTACRA.**

Coptacra, Stål, Recens. Orth. i, 1873, pp. 37, 58.

Type, *Acridium fœdatum*, Serv.

Range. Java, India.

[Vertex not broader than the frontal ridge; frontal ridge thickly punctured, parallel-sided, very slightly wider between the antennæ than at the vertex; antennæ more or less ensiform,

depressed beyond the third joint, which is as long as or longer than the second. Pronotum with the three sulci slightly marked; prosternal tubercle pointed. Hind femora moderately thickened, slender towards the apex. Tegmina and wings well developed, obliquely truncate at the apex.]

288. **Coptacra ensifera**, *Bol.*

Coptacra ensifera, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 621.

Brownish testaceous. Fastigium shortly tricarinate between the eyes, the middle carina produced backwards; tempora well-marked, carinulate within; frontal ridge impress-punctate, very slightly expanded and produced between the antennæ, very slightly sinuated, front rugose; antennæ distinctly ensiform, with the second joint evidently narrower than the following ones. Pronotum scabrous, rugose, bordered with grey bristles. Tegmina as long as, but not longer than, the hind femora, the distal area subhyaline, obliquely and narrowly banded with brown, with the tips very obliquely truncated; wings yellowish hyaline, with the radial area obliquely truncated at the tip. Legs dotted with grey hairs, the front and middle legs rugose; hind femora with the upper outer area scabrous, and the lower outer area rather broad, black, and transversely rugose; inner area red, with two more or less distinct brown bands; hind tibiæ red, with 11 inner and 9 outer black-tipped spines.

Length 27 mm.; pronotum, 6·5 mm.; tegmina, 25 mm.; hind femur, 16·5 mm.

MADRAS; Madura.

Genus **COPTACRELLA.**

Coptacrella, Bolivar, Ann. Soc. Ent, France, lxx, 1902, pp. 622, 624.

TYPE, *Coptacrella martini*, Bol.

Range. India.

Head (seen from the front) not expanded below; frontal ridge continuous, almost everywhere equally broad, but slightly contracted below, though on the same plane; somewhat compressed between the antennæ, and in the male slightly expanded; lateral carinæ pointed, and nearly parallel with the carinæ bordering the frontal ridge, lateral area of the front about three times as broad as the frontal ridge; eyes oblong, separated above by a narrow interval, about as broad as the frontal ridge; vertex horizontally produced by arching continuously into the frontal ridge, with a carina on each side above between the eyes, often interrupted in the middle; antennæ slightly longer than the head, depressed and narrowly ensiform from the third joint. Pronotum obtusely tectiform, the middle carina cut by the three sulci, and rectangular behind. Tegmina rudimentary, pointed towards the tips, with

the marginal area convex and produced. Hind femora with the lower outer area black, with a slight longitudinal carina; hind tibiæ sinuated.

289. **Coptacrella martini**, *Bol.*

Coptacrella martini, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 622, pl. 9, fig. 37.

Pale ochreous, rugose-granulose, and clothed with grey hairs. Head and pronotum often granulated with black. Tegmina extending to the middle of the abdomen, narrowly rounded at the tips, with the marginal area roundly produced. Hind femora above indistinctly and obliquely banded with brown, lower outer area shining black, the inner side, the base, and the hind tibiæ red. Supra-anal lamina of the male lanceolate, longer than the cerci, with the margins entire.

Length 14–24 mm.; pronotum, 3·2–5 mm.; hind femur, 9–12 mm.

MADRAS: Kodaikanal.

Types in the collections of Pantel and Bolivar.

Genus **EUCOPTACRA**.

Eucoptacra, Bolivar, Ann. Soc. Ent. France, lxx, 1902, pp. 623, 625.

TYPE, *Acridium* (*Catantops* ?) *præmorsum*, Stål.

Range. The Oriental Region, Australia.

Frontal ridge distinctly expanded between the antennæ, lateral carinæ of the front parallel, sinuous in the middle; fastigium of the vertex transverse, sloping, arched into the costal ridge; antennæ filiform, not depressed at the base, the third joint distinctly narrower than the second. Tegmina well-developed, the tip oblique, but not sinuated; the costal area of the wings truncated at the tip. Hind femora with the lower outer area black, with a longitudinal carina; hind tibiæ sinuated.

Key to the Species.

Wings subhyaline, greenish towards the base........ *præmorsa*, Stål.
Wings hyaline-yellow........................... *ceylonica*, sp. n.

290. **Eucoptacra præmorsa**, *Stål.*

Acridium (*Catantops*?) *præmorsum*, Stål, Eugenie's Resa, Orth. 1860, p. 330.
Acridium saturatum, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 628 (n. syn.).
Calopteuus strigifer, Walker, op. cit. v, Suppl. 1871, p. 66.
? *Coptacra cyanoptera*, Brunner, (or Stål), Ann. Mus. Genova, xxxiii, 1893, p. 159.

Brownish testaceous. Front thickly punctured, frontal ridge

obtuse, not sulcated, expanded between the antennæ, bounded by distinct parallel carinæ, cheeks with a well-marked carina below the eyes; antennæ filiform, contracted at the base, hardly longer than the head and pronotum together. Pronotum narrowed in front, rather convex, truncated at the extremity, forming an obtuse angle rounded off at the tip, median carina continuous, not interrupted by the sulci, the first and second of which extend far into the lateral lobes, and the third is wholly dorsal. Tegmina extending beyond the hind femora, subparallel-sided, truncated at the tips; beyond the middle subhyaline with oblique obsolete transverse dusky markings; wings pale brownish hyaline, greenish towards the base, and clouded at the tip. Hind femora extending beyond the abdomen, with a black spot before the tip on the upper inner area, the lower outer area brown, the carina marked with dark brown, the inner surface of the hind femora and the hind tibiæ and tarsi red, with the spines tipped with black.

Length 23 mm.; expanse of tegmina, 47 mm.

BOMBAY: Bandra; MADRAS: Madura; BURMA: Bhamo; TENASSERIM: Maliwon; CHINA.

291. **Eucoptacra ceylonica**, sp. nov.

Light brown. Antennæ filiform, rather longer than the head and pronotum together; frontal ridge hardly sulcated, expanded between the antennæ, thickly punctured, the carina well marked, as also the lateral carinæ commencing between the antennæ and the eyes. Pronotum rugosely punctate, the three sulci slightly marked, but distinct, and the hindmost placed about the middle; hinder extremity almost rectangular. Tegmina long, rather narrow, obtusely truncated at the extremity, light brown, with indistinct dusky transverse markings; wings hyaline yellow. Hind femora greyish brown, with brown spots above, the most distinct being before the tip, and separated by an oblique yellowish space on the upper inner area; inner and lower surface, as well as the hind tibiæ and tarsi red; 10–11 black-tipped tibial spines.

Fig. 131.—*Eucoptacra ceylonica.*

Length 27–30 mm.; expanse of tegmina, 48–50 mm.

CEYLON.

Type in the British Museum.

Genus EPISTAURUS.

Epistaurus, Bolivar, Jorn. Sci. Lisb. (2) i, 1889, p. 164.

TYPE, *Epistaurus crucigerus*, Bol.

Range. India, Burma, Africa.

Costal ridge round, arched at the base, very broad between the antennæ, and narrowed towards the extremity, hardly sulcated; the vertex longitudinally carinated, with a transverse carina between the eyes. Pronotum with the median carina well marked, interrupted only by the hind sulcus. Tegmina well-developed, obliquely truncated at the tips.

Key to the Species.

Abdomen brown .... *aberrans*, Brunn.
Abdomen red, spotted on the back .... *sinetyi*, Bol.

292. Epistaurus aberrans, *Brunn.*

Epistaurus aberrans, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 160, pl. v, fig. 55.

Brownish testaceous, very hairy. Tegmina obtusely and obliquely truncated at the tips; wings yellowish, with the borders infuscated. Hind femora with the outer side indistinctly bifasciated with brown, the inner side red; hind tibiæ pale in the male, and red in the female. Last dorsal segment in the male bilobate at the extremity; supra-anal lamina in the male quadrate, slightly sulcated; cerci curved, deflexed and pointed at the tips.

Length 12·5–18·5 mm.; pronotum, 3·7–4 mm.; tegmina, 14–15 mm.; hind femur, 10–11 mm.

BURMA: Bhamo.

Type in the Genoa Museum.

293. Epistaurus sinetyi, *Bol.*

Epistaurus sinetyi, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 623.

Pale reddish. Median carina of the vertex very indistinct. Wings yellowish hyaline. Hind femora obliquely trifasciate with brown, lower outer area brown, interrupted in the middle, on the inside red at the base, and bifasciate with brown; tibiæ clothed with long grey hairs, brown at the base, ringed with pale, and then red, with 9 outer and 11 inner spines. Abdomen red, with a row of spots on the back interrupted by the median line; male with the supra-anal lamina smooth, transversely and rather indistinctly impressed in the middle, with the tip acutely angulated; cerci short, slightly compressed, incurved towards the tips; subgenital

lamina obtuse, slightly produced; female with the valves of the ovipositor coarsely impress-punctate.

Length 12–15 mm.; pronotum, 3–4 mm.; tegmina, 9–12 mm.; hind femur, 7·5–10 mm.

MADRAS: Madura.

Types in the collection of I. Bolivar.

Genus GERENIA.

Gerenia, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, pp. 28, 73.

TYPE, *Acridium dorsale*, Walk. (*Gerenia obliquenervis*, Stål).

Range. India, Burma, Australia.

Head broad, space between the eyes broad; fastigium of the vertex short, rounded into the costal ridge, which is almost obsolete below the antennæ; antennæ rather short, filiform. Pronotum with the median carina tectiform, cut by three sulci, the latter placed about the middle, hind border obtusely angulated; prosternal tubercle pointed. Tegmina and wings usually well-developed, the former with a shining black spot in the radial area. Hind femora thickened, with the carinæ denticulated; hind tibiæ with from 8 to 11 spines.

Key to the Species.

1 (4) Tegmina as long as or longer than the abdomen.	
2 (3) Black spot of tegmina subrotund ..	*dorsalis*, Walk., p. 243.
3 (2) Black spot of tegmina longer than broad	*intermedia*, Brunn., p. 244.
4 (1) Tegmina shorter than the abdomen.	
5 (6) Black spot of tegmina linear	*pustulipennis*, Walk., p. 244.
6 (5) Black spot of tegmina oval........	*abbreviata*, Brunn., p. 244.

294. Gerenia dorsalis, *Walk.*

Acridium dorsale, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 630.
Gerenia obliquenervis, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, p. 73 (n. syn.).

Brown or yellowish brown. Front punctured, frontal ridge not sulcated, obsolete below the ocellus. Pronotum thickly and rugosely punctate, with raised granules. Hind femora with the carinæ denticulated and dotted with black, violaceous beneath; hind tibiæ and tarsi dull violaceous or sanguineous, spines tipped with brown. Tegmina with a subrotund black spot in the radial area, sometimes followed by a black dot; wings hyaline, slightly bluish at the base.

Length 32–41 mm.; tegmina, 27–34 mm.

S. INDIA.

Type in the British Museum.

295. Gerenia pustulipennis, *Walk.*

Caloptenus pustulipennis, Walker, Cat. Derm. Salt. B.M. v, Suppl. 1871, p. 68.

Very similar to the last species, but more reddish brown, and the hind legs almost entirely reddish. Tegmina much shorter than the abdomen (?), with a linear black streak and a small black spot on the right tegmen, and on the left two contiguous spots, the upper rounded, and the lower small and oblong; wings hyaline.

Length 35 mm.; tegmina much damaged.

Type in the British Museum.

296. Gerenia intermedia, *Brunn.*

Gerenia intermedia, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 161, pl. v, figs. 5, 6.

Resembles *G. dorsalis*; the space between the eyes is rather narrower, the black spot on the tegmina is longer than broad, and the hind femora are smooth above, less strongly denticulated, and not dark coloured beneath.

Length 32 mm.; pronotum, 9 mm.; tegmina, 28 mm.; hind femur, 20 mm.

Type in the Genoa Museum.

297. Gerenia abbreviata, *Brunn.*

Gerenia abbreviata, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 162.

Differs from the last species in the short pointed tegmina, which are considerably shorter than the abdomen. The hind femora are smooth, with the carinæ slightly denticulated, and the lower outer area brownish; hind tibiæ reddish towards the tips in the male, and dull fulvous in the female. Supra-anal lamina of the male triangular, sulcated; cerci straight and pointed; subgenital lamina compressed, short and pointed.

Length 23–34 mm.; pronotum, 7–10 mm.; tegmina, 12–15 mm.; hind femur, 15–20 mm.

BURMA: Prome.

Type in the Genoa Museum.

Genus TRAULIA.

Traulia, Stål, Recens. Orth. i, 1873, pp. 37, 58.

TYPE, *Acridium flavoannulatum.*

Range. India, Burma, Malay Peninsula and Islands.

Antennæ half as long again as the head and pronotum together, black with pale tips; fastigium of the vertex produced and sulcated, passing into the frontal ridge, without a transverse

carinula, frontal ridge sinuated below the antennæ, and continued to the labrum; palpi pale, sometimes white. Pronotum thickly punctured, cylindrical, slightly flattened above, the median carina almost obsolete in front. Tegmina narrow, hardly dilated in the middle, rounded at the tips, sometimes lateral and lobiform; wings rounded, with the hind margin crenate. Front and middle femora slender, hind femora thicker, denticulated; hind tibiæ pilose, with 7 outer and 8 inner spines. Prosternal tubercle pointed; pectus broad, with the lobes of the meso- and metasternum not contiguous. Supra-anal lamina of the male triangular, sulcated; cerci deflexed at the tips, and dilated at the apex in the subapterous species; ovipositor smooth, with the tips slightly incurved.

Key to the Species.

Tegmina and wings well developed............	*dimidiata*, De Haan.
Tegmina and wings rudimentary..............	*cachara*, sp. n.

298. **Traulia dimidiata**, *De Haan.*

Acridium (Oxya) dimidiatum, De Haan, Temminck's Verhandel., Orth. 1842, pp. 156, 157, pl. xxi, fig. 4.

Black, with a transverse yellow band, narrowed in front below, running across the face backwards along the lower border of the pronotum; within each eye above runs another yellow band bordering the sides of the pronotum. Hind femora with an oblique yellow stripe outside towards the base, a yellow mark beneath just beyond the middle, and a yellow ring before the extremity; tibiæ with a yellow ring near the base, and a long red space before the extremity. Tegmina light brown, with a yellow line along the fold; wings hyaline blue, with the tips clouded. In the female the yellow markings are much less distinct, and the black band on the pronotum above is widely interrupted in the middle.

Length 20–37 mm.; expanse of tegmina, 35–45 mm.

TENASSERIM: Thagata; MALAY STATES; JAVA; BORNEO.

Type in the Leyden Museum.

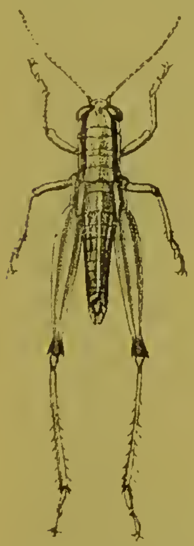

Fig. 132.—*Traulia cachara.*

299. **Traulia cachara**, sp. nov.

Head in front and head and pronotum above, green; a wide black stripe runs behind each eye, covering the sides as far as the base of the hind femora; it is divided by large pale yellow spots, one on the head, two on the sides of the pronotum, and two smaller ones below the tegmina. Abdomen brown, with

three yellowish longitudinal lines, one on the median carina, and the lateral ones bordering a broad black stripe that runs along the sides of the abdomen nearly to the tip. Tegmina black, bordered within with green, oval, lateral, extending as far as the third segment of the abdomen. Legs green, the front and middle tibiæ and tarsi blackish; hind femora red towards the extremity, with the knees black; hind tibiæ green, with an ivory white spot at the base, bordered before and behind with black.

Length 23 mm.; tegmina, 5 mm.

ASSAM: Cachar.

Type in the British Museum.

Genus CATANTOPS.

Catantops, Schaum, Bericht. Akad. Berlin, 1853, p. 779.

TYPE, *Catantops melanostictus*, Schaum.

Range. Africa, Oriental and Australian Regions.

Head considerably produced between the antennæ, vertex gradually sloping into the frontal ridge, which is nearly parallel-sided, and hardly sulcated, face oblique; eyes oval, oblique, approximating above; antennæ filiform. Pronotum carinated in the middle, the sulci rather indistinct, the hindmost placed about the middle, the hind border obtusely angulated. Prosternal tubercle stout, obtuse; mesosternal lobes transverse, metasternal lobes contiguous. Tegmina and wings usually well developed. Hind femora moderately thickened, serrated above, often with black markings.

*Key to the Species.**

1 (18) Wings uniform yellowish testaceous.
2 (17) Hind tibiæ red or testaceous.
3 (16) Tegmina light brown or yellowish.
4 (7) Hind femora with two dark brown oblique fasciæ on the outer side, extending from the upper part to the lower carina.
5 (6) Pronotum dark brown, with a distinct yellow vitta on each side, extending forwards to the eyes . . *dominans*, Walk., p. 248.
6 (5) Pronotum light brown, with ill-defined yellowish vitta on each side . . . . *acuticercus*, Bol., p. 248.
7 (4) Hind femora with the dark fasciæ confined to the upper part.
8 (13) Metasternal episterna with a distinct oblique yellowish vitta.
9 (10) Posterior femora with a row of black dots on the lower outer carina for the whole length . . . . *karnyi*, Kirby, p. 251.

* *C. consobrinus* and *pinguis* are known only from descriptions which do not give sufficient data to enable them to be located in this key.

10 (9) Posterior femora with two or three black dots on the carina close to apex.
11 (12) Frontal ridge parallel, only slightly impressed in the middle ...... *indicus*, Bol., p. 251.
12 (11) Frontal ridge parallel, rather deeply chanelled in the middle .... { *humilis*, Serv., p 250. / *interruptus*, Bol.,* p. 251.
13 (8) Metasternal episterna without yellow vitta.
14 (15) Frontal ridge parallel, only impressed just below the ocellus, scarcely continued to clypeus, faintly punctured .... *ferruginea*, Walk.†
15 (14) Frontal ridge parallel, impressed for its whole length, closely and very distinctly punctured...... *innotabile*, Walk.†
16 (3) Tegmina rather dark fuscous brown, especially anteriorly; wings yellowish fuscous ...... *splendens*, Thb., p. 250.
17 (2) Hind tibiæ blue .... { *ophthalmicus*, Karny,‡ p. 247. / *angustulus*, Bol.,‡ p. 248.
18 (1) Wings red at the base.
19 (20) Wings rose-red at the base...... *erubescens*, Walk., p. 253.
20 (19) Wings scarlet at the base; size larger .... *pulchellus*, Walk., p. 252.]

300. Catantops ophthalmicus, *Karny*.

Catantops ophthalmicus, Karny, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi, 1907, pp. 313, 330.

Brownish testaceous. Eyes rounded, subcontiguous, the intervening space not broader than the antennæ. Pronotum slightly constricted behind the middle, with the transverse sulci distinct, the lateral lobes unicolorous in the female; the lower half pale, with the margins whitish, and varied with black, in the male. Tegmina uniform greyish testaceous, scarcely extending beyond the hind knees. Prosternum with the tubercle straight, conical, pointed; mesosternal lobes rather wide apart, metasternal lobes contiguous. Front and middle femora spotted with black; hind femora testaceous, concolorous, or suffused with brown, the longitudinal carinæ varied with black; hind tibiæ dull bluish, with black spines. Cerci of the male slender, incurved, tapering towards the tip, pointed and not bifid; subgenital lamina of the male sharply boat-shaped, distinctly longer than the cerci.

Length 19–28 mm.; pronotum, 4–6 mm.; tegmina, 15–12·5 [? 22·5] mm.; hind femur, 11–16 mm.

N. Ceylon.

[* *C. interruptus* is a variety of *C. humilis* distinguished by the long slender cerci of the male.

† Considered to be varieties of *humilis* by Mr. Kirby (*see* p. 250).

‡ These species are possibly identical.]

301. **Catantops angustulus**, *Bol.*

Catantops angustulus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 627.

Reddish brown, varied with brown. Space between the eyes very narrow, not broader than the width of the antennæ, fastigium of the vertex rather pointed; frontal ridge parallel-sided, not arched at the base, narrowed and rather concave before the ocelli, raised between the antennæ, impress-punctate. Pronotum hardly punctured in front, but thickly and closely punctured behind, with the front margin slightly indented in the middle, rounded or very obtusely angulated behind, the median carina nearly obsolete in front, and the lateral lobes with a longitudinal brown fascia in the male. Tegmina extending much beyond the abdomen, varied with brown, and with crowded pale nervures. Hind tibiæ blue. Cerci narrowed towards the tip, which is bifid.

Length 16–21 mm.; pronotum, 3·5–4·5 mm.; tegmina, 17–20 mm.: hind femur, 10–11·5 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

302. **Catantops acuticercus**, *Bol.*

Catantops acuticercus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 626.

Ferruginous brown, or pale ochraceous. Fastigium of the vertex rather pointed, frontal ridge arched at the base, then nearly parallel-sided, punctured, slightly concave before the ocellus. Pronotum thickly punctured, median carina slight, but continuous, hind border rectangular; lateral lobes above with a brown band, arched across the metapleura to the hind coxæ; metanotum with an oblique pale band on each side. Tegmina longer than the abdomen, brown in front, with the radial area spotted with brown. Prosternal tubercle thick. Hind femora with two black transverse bands above, obliquely produced into the outer median area, lower outer area brown, inner area red; hind tibiæ red. Cerci of the male pointed, slightly incurved.

Length 19–26 mm.; pronotum, 4–7 mm.; tegmina, 18–25 mm.; hind femur, 12–16·5 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

303. **Catantops dominans**, *Walk.*

Caloptenus dominans, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 705.

Head light brown in front; antennæ reddish, rather longer than the head and pronotum; fastigium of the vertex rather

obtuse, widened in front of the eyes, face punctured, frontal ridge sulcated, very slightly widened below the ocellus, the carinæ slightly black-spotted; a dark stripe runs from the fastigium over the vertex (where it is lightest) and the pronotum; it is bordered on each side by a yellow stripe, broader and less defined on the metanotum. Pronotum thickly punctured above, the median carina slightly developed and almost obsolete in front, the transverse sulci slightly marked, the hindmost placed about the middle; the hind border forming a very obtuse angle, with the tip truncated; at the lower end of the eye is a whitish spot, above which is a second, and between this and the yellow lateral stripes above is a brown stripe, running backwards from the eye and expanding over the whole of the deflexed lobes, except for a slight yellow border in front; lower border of deflexed lobes nearly straight. Abdomen yellowish brown, with a black median stripe above becoming macular hindwards, and with some slight yellow spots on the sides. Prosternal tubercle conical, rounded at the tip; mesosternal lobes small, separate; metasternal lobes contiguous. Tegmina long, light brown, speckled with brown in the costal area, and subhyaline towards the tips; wings hyaline, slightly brownish towards the borders. Front and middle legs light brown; hind femora yellowish, the outer area with two broad oblique brown bands, continued more narrowly on the upper surface and to the middle of the inner surface; inner surface red, lower surface light brown, knees brown; hind tibiæ red, with 8–9 black-tipped spines on each side; the two basal joints of the tarsi red, terminal joint brown.

Length 31 mm.; expanse of tegmina, 62 mm.

ASSAM: Sylhet.

Type in the British Museum.

304. Catantops consobrinus, *Karny*.

Catantops consobrinus, Karny, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi, 1907, pp. 319, 341.

Testaceous, lateral lobes of the pronotum unicolorous. Tegmina extending much beyond the hind knees, testaceous, mottled with grey at the base and grey at the tip. Prosternal tubercle short, very obtuse; mesosternal lobes not wide apart, metasternal lobes contiguous; metathorax with an oblique pale stripe on the sides. Hind femora above with transverse dusky bands, a stripe in front very slightly extending into the externo-median area, and all the carinæ, especially the lower ones, spotted with black; hind tibiæ dull testaceous. Male cerci slender, pointed, incurved; subgenital lamina of male slightly compressed.

Length 23 mm.; pronotum, 5 mm.; tegmina, 22 mm.; hind femur, 13 mm.

INDIA (?).

Type in the collection of Brunner von Wattenwyl.

305. **Catantops splendens**, *Thunb.*

Gryllus splendens, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 236, ix, 1824, pp. 395, 408.
Acridium luteolum, Serville, Ins. Orth. 1839, p. 661.
Acrydium rufitibia, Walker, Ann. & Mag. Nat. Hist. (3) iv, 1859, p. 223.

Greenish brown. Frontal ridge sulcated, rather broad, punctured, with parallel sides. Pronotum thickly punctured, the carina and transverse sulci slightly marked, the deflexed lobes sometimes pale beneath, the hind border very obtusely angulated, subrotund. Prosternal tubercle long, obtuse. Tegmina long and narrow, rounded at the end, testaceous subhyaline, more or less mottled with blackish; wings yellowish hyaline, rarely hyaline. Hind femora with the outer area yellowish, generally with a longitudinal stripe, double towards the base, on its upper portion, and another on the lower side: inner surface black above, and red below; hind tibiæ red (rarely yellowish) with 10–11 black-tipped spines. Male with the cerci slender, pointed, incurved; supra-anal lamina long, pointed, compressed.

Length 33 mm.

India; Ceylon; Andamans; Nicobars; Burma; Java, &c.

306. **Catantops humilis**, *Serv.*

Acridium humile, Serville, Ins. Orth. 1839, p. 662.
Acridium innotabile, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 629.
Caloptenus ferrugineus, Walker, op. cit. 1870, p. 705.
Caloptenus immunis, Walker, op. cit. v, Suppl. 1871, p. 67.

Dull greenish brown. Frontal ridge moderately sulcated, punctured, with parallel carinæ; eyes large. Pronotum thickly and finely punctured, with the median carina slightly, and the transverse sulci still more slightly, marked; the hind border obtusely angulated, or subrotund. Prosternal tubercle thick, obtuse. Tegmina rather long, often with dusky mottling; wings clear hyaline. Abdomen shining, yellowish, darker on the back. Hind femora yellowish, with two transverse blackish bands above; inner surface and hind tibiæ and tarsi red; tibiæ with 10–11 black-tipped spines. Cerci of male slender, pointed, slightly incurved; subgenital lamina pointed at tip.

Fig. 133.—*Catantops humilis.*

Length 22–30 mm.; expanse of tegmina, 42–55 mm.

Sikkim; Assam: Sylhet; Bengal: Calcutta; Bombay; Ceylon.

307. **Catantops interruptus**, *Bol.*

Catantops humilis var. *interruptus*, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 625.
Catantops interruptus, Karny, Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi, 1907, pp. 317, 339.

Pale ochreous, sparingly mottled with brown. Frontal ridge slightly widened between the antennæ, punctured; fastigium rather pointed, longer than broad in front of the eye. Pronotum slightly compressed, rugosely punctate, with the median carina slight, but continuous, the hind border almost rectangular; the lateral lobes concolorous, or slightly darker in front above. Tegmina longer than the abdomen, varied with brown, with numerous pale transverse nervures. Prosternal tubercle thickened at the tip. Hind femora pale, with two brown transverse bands above, the first slightly interrupted below, the lower outer area and extremity brown; hind tibiæ brown, with a pale ring at the base. Cerci of the male long and slender, slightly compressed at the tip.

Length 27–39 mm.; pronotum, 7–8·5 mm.; tegmina, 25–32 mm.; hind femur, 16–21 mm.

MADRAS: Madura.

Type in the collection of I. Bolivar.

308. **Catantops indicus**, *Bol.*

Catantops indicus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 626.

Testaceous brown, or ferruginous. Frontal ridge very slightly narrowed towards the extremity, punctured, projecting somewhat before the ocellus; fastigium of the vertex nearly transverse in front of the eyes. Pronotum thickly and finely rugose-punctate, with a slight continuous median carina; hind border obtusely angulated, lateral lobes above indistinctly brownish. Tegmina longer than the abdomen, finely mottled with brown, radial area with pale spots; metathorax with an oblique pale streak. Hind femora transversely banded with brown above the middle and before the tip, with the bands very slightly, if at all, produced into the externo-median area, which is yellow as far as the lower margin; the lower outer area brown; hind tibiæ red. Cerci expanded at the tips.

Length 24–30 mm.; pronotum, 5–6·8 mm.; tegmina, 22–28 mm.; hind femur, 12·5–16 mm.

MADRAS: Kodaikanal; CEYLON; COREA; CHINA.

Type in the British Museum.

309. **Catantops karnyi**, *Kirby.*

Catantops karnyi, Kirby, Syn. Cat. Orth. iii, 1910, p. 483.
Catantops pulchellus, Karny (*nec* Walker). Sitz. Akad. Wiss. Wien, Math.-nat. Cl. cxvi, 1907, pp. 317, 339.

Reddish brown. Eyes almost touching above, fastigium rounded

between the antennæ; frontal ridge rather broad, finely punctured, slightly contracted at the ocellus. Pronotum broad, especially behind, an irregular dark brown band behind the eyes, slightly bordered with yellow above and below, and very faintly indicated on the metapleura; pronotum thickly punctured, finely above, but much more coarsely on the metapleura; under the wings is a broad yellowish white oblique band, preceded by a dot of the same colour; hind border of pronotum obtusely angulated. Prosternal tubercle stout, obtuse at the extremity. Legs testaceous; hind femora with two oblique black bands on the sides, paler on the upper surface, but obsolete below, the lower outer carina spotted with black; hind tibiæ with 8 or 9 black-tipped spines, and one or two black spots near the base. Tegmina greyish brown, subhyaline, with indistinct darker mottling; wings hyaline.

Length 23–25·5 mm.; pronotum, 5 mm.; tegmina, 20–22 mm.; hind femur, 14–14·5.

NEPAL: Ternani.

Type in the collection of Brunner von Wattenwyl; co-type in the British Museum.

310. Catantops pinguis, *Stål.*

Acridium (*Catantops*) *pingue*, Stål, Eugenie's Resa, Orth. 1860, p. 330.

Reddish brown, rather stout. Frontal ridge finely punctured, slightly expanded between the antennæ, lateral carinæ distinct, slightly divergent; eyes approximating; antennæ filiform, about as long as the head and pronotum together. Pronotum closely punctured, obtusely angulated behind; carina slight, continuous, with the sulci well marked. Tegmina extending beyond the abdomen, slightly narrowed at the tip, which is rounded, darker towards the base, and subhyaline towards the tip; wings dull hyaline, or slightly greenish towards the base, with brown nervures, and slightly clouded towards the tip. Under surface of body and legs pale; prosternal tubercle thick, obtuse. Abdomen with a short narrow dorsal stripe behind. Hind femora stout, with two transverse black spots above, the first extending into the externo-median area, the lower outer area blackish brown, and the upper carinæ slightly serrated; hind tibiæ and tarsi red, the former with black-tipped spines. Cerci of the male slightly expanded at the tips.

Length 27–34 mm.: expanse of tegmina, 40–61 mm.

SIKKIM: CEYLON; BURMA: Karen Hills; CAMBODIA; CHINA; JAPAN, &c.

311. Catantops pulchellus, *Walk.*

Cyrtacanthacris pulchellus, Walker, Cat. Derm. Salt. B.M. iii, 1870, p. 574.

Light brown. Face finely punctured, with parallel inner

carinæ, the outer slightly divergent below; frontal ridge uniform in width, shallowly sulcated. Pronotum finely punctured, with the sulci fairly well-marked; the last placed about the middle, hinder edge obtusely rounded; a moderately broad blackish band runs behind the eye to the extremity of the deflexed lobes. Prosternal spine thick, obtusely rounded at the extremity; abdomen reddish. Tegmina greyish subhyaline, mottled with brown, especially towards the middle, hinder area pale, perhaps greenish or reddish in life; wings iridescent hyaline, brick-red towards the base along the veins. Hind femora yellowish outside and above, and reddish within, with two black streaks in the outer upper carina; opposite them, on the inner side above, and slightly extending to the inner area, are two transverse black bands; the knees are also marked with black on each side; hind tibiæ and tarsi red with black-tipped spines, the tibiæ with 9 or 10 on each side.

Length 37 mm.; expanse of tegmina, 78 mm.

INDIA (?).

Type in the British Museum.

312. Catantops erubescens, *Walk.*

Caloptenus erubescens, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 703.

Reddish brown, finely punctured. Frontal ridge very slightly depressed in the male, and flattened in the female, subparallel-sided; antennæ yellowish, moderately stout, filiform, about as long as the head and pronotum together. Pronotum with the median carina and sulci only slightly marked, the hind sulcus placed just behind the middle, the hinder border obtusely rounded; a blackish stripe runs behind each eye, which is paler and broader on the metapleura. Prosternal tubercle thick, obtuse; abdomen light brown, rather shining. Tegmina subhyaline, brown towards the base, and mottled with brown beyond, the hinder area pale, perhaps reddish in life, with some scattered black spots; wings hyaline, rose-red towards the base. Hind femora reddish, inclining to yellow outside, with a broad black stripe on the outer upper area, obsolete at the base and towards the extremity; and another extending

Fig. 134.—*Catantops erubescens.*

to the knees below the upper outer carina; on the inner upper surface are several large black spots; tibiæ and tarsi red, the tibiæ with 8 or 9 black-tipped spines.

Length 28–33 mm.; expanse of tegmina, 48–60 mm.

NORTH BENGAL.

Type in the British Museum.

Genus STENOCROBYLUS.

Stenocrobylus, Gerstaecker, Arch. Naturg. xxxv, 1869, p. 219.

TYPE, *Stenocrobylus cervinus*, Gerst., from Zanzibar.

Range. Africa, India.

Eyes (in the type at least) closely approximating, vertex very narrow; pronotum with a slight median carina; prosternal tubercle compressed, almost bilobate; tegmina and wings well developed; hind legs stout, rather long, hind tibiæ with 8 spines on the outer carina; metasternal lobes of female rather widely separated.

313. Stenocrobylus femoratus, *Bol.*

Stenocrobylus femoratus, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 623.

Reddish above, greenish below, pilose. Vertex very narrow between the eyes, hardly broader than the width of the antennæ, fastigium concave; front slightly sloping, coarsely punctured towards the clypeus, with many green spots; frontal ridge smooth, punctured in the middle, arched near the vertex, and slightly narrowed towards the extremity; antennæ greenish. Pronotum punctured, slightly hairy in front, and smoother and obtusely angulated behind, with a slight median carina, and the hinder sulcus placed rather behind the middle; the deflexed lobes higher than long, narrowly rounded behind, with a broad red band traversing the lower part of the lobes. Tegmina green, distinctly narrowed towards the tips, extending for half their length beyond the abdomen. Anterior legs green; hind femora thick, reddish, with the carinæ of the outer area spotted with black, knees with a black curve on both sides; hind tibiæ green, with long grey pile. Prosternal tubercle subcuneiform, slightly transverse; metasternal lobes moderately distant behind the foveolæ in the female.

Length 20 mm.; pronotum, 4 mm.; tegmina, 8·5 mm.; hind femur, 12 mm.

MADRAS: Madura.

Type in the collection of M. Pantel.

Genus NAVASIA, nov.

TYPE, *Navasia insularis*, sp. nov.

Range. India.

Eyes large, oval, separated by a space as broad as the lower part of the frontal ridge; fastigium of the vertex slightly narrowed in front, and sloping into the frontal ridge, which is narrowed above, slightly widened below, sulcated and strongly punctured, but not much produced, nor oblique; vertex nearly smooth. Pronotum rather flattened, very slightly rounded behind, with four sulci, the first lateral, the second dorsal, and the two hinder ones complete, the median carina cut by the three hinder ones, and nearly obsolete between them, the hindmost placed rather behind the middle; pronotum punctured most strongly behind and on the sides, a broad punctured indistinct carina on each side, not continued on the hinder lobe. Antennæ with long joints, and nearly twice as long as the head and pronotum together. Prosternal tubercle conical, rather pointed, but rounded off at the tip. Tegmina long and narrow, longer than the abdomen; wings hyaline, rather narrow, nearly as long as the tegmina. Hind femora moderately thickened at the base, longer than the abdomen; hind tibiæ with 8 or 9 spines.

Differs from *Coptacra* in the flattened pronotum with indistinct lateral carinæ in front.

Fig. 135.—*Navasia insularis*.

314. Navasia insularis, sp. nov.

Light brown, tegmina thickly veined, otherwise subhyaline; wings hyaline, with brown nervures, a broad reddish stripe on the costa beyond the middle for a short distance, tips infuscated. Hind femora yellowish, with a slight reddish shade, with two transverse black bands, paler above, the first oblique in the upper outer part of the sides, but not extending to the lower carina, either on the outer or inner surface; the second smaller, but extending to both; knees with a black band on each side, connected by a transverse black band beneath; lower outer carina spotted with black; hind tibiæ pubescent, yellow, red at the base, followed by two black rings (the second the broader) separated by a yellow space; hind tibiæ with 8 or 9 black-tipped spines on each side.

Length 30–32 mm.; expanse of tegmina, 60–65 mm.

INDIA: Narandam Island.

Type in the British Museum.

Genus BRACHYXENIA, nov.

Type, *Caloptenus scutifer*, Walk.

Range. India.

Body very broad. Head very broad; eyes prominent, slightly oval; fastigium of the vertex not depressed, with a slight carina within each eye above, passing into the frontal ridge without a break; frontal ridge flattened, slightly sloping, the carinæ very slightly indicated between the antennæ, lateral carinæ obsolete; face thickly and rather coarsely, but not distinctly punctured, vertex and back of head smooth; antennæ filiform, shorter than the head and pronotum together. Pronotum broader than the head, strongly punctured and granulated, with the median carina well marked in front, but evanescent beyond the middle; lateral carinæ absent, hinder edge produced into an acute angle; sulci very slightly marked and undulated, the hind sulcus placed considerably before the middle. Prosternal tubercle forming a transverse flattened lamina; mesosternal lobes separated by a space equal to their own breadth; metasternal lobes separated by the fossæ. Tegmina as long as the abdomen, with nearly parallel sides, slightly expanded on the costa near the base, and with the extremity obtusely rounded; wings as long as the tegmina, rounded and scalloped. Hind femora very stout, strongly ridged and granulated, and pubescent beneath; hind tibiæ as long as the femora, with 7–9 spines on the carina.

This curious genus has a superficial resemblance to *Truethis*. At present I place it provisionally near *Catantops*.

Fig. 136.—*Brachyxenia scutifera.* (*a*) hind leg.

315. **Brachyxenia scutifera,** *Walk.*

Caloptenus scutifer, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 704, n. 56.

Light brownish grey (discoloured?). Head, abdomen, and hind femora whitish, the granules on the pronotum and the raised striæ on the hind femora yellowish, the carinæ, knees, and lower area of the femora with black speckles; tegmina with traces of dusky markings towards the base and before the tip, and also of a longitudinal row of whitish spots; there are also traces of blackish spaces on the mesopleura, towards the tips of the femora, and on the knees; the tibial spines and abdominal appendages are tipped with black.

Length 30-32 mm.; hind femur, 18 mm.; expanse of tegmina, 48 mm.

SOUTH INDIA.

Type in the British Museum.

Genus **KRIPA**, nov.

TYPE, *Kripa undulata*, sp. nov.

Range. N.W. India.

Head large, smooth above; antennæ filiform, as long as the head and pronotum together; space between the eyes about as broad as half their diameter, fastigium of the vertex longer than broad, concave, and gradually passing into the costal ridge, which is nearly perpendicular, flattened, and distinctly widened below; sparingly punctured, cheeks more thickly, the lateral carinæ very slightly indicated. Pronotum broad, tricarinate, the lateral carinæ undulating, and nearly obsolete behind; hinder area thickly and coarsely punctured on the sides, less strongly above, the sutures slightly marked, the hindmost placed about the middle, hind border rectangular with the tip rounded. Tegmina about as long as the abdomen, subhyaline, light brown towards the base, and mottled with light brown beyond, the markings towards the apex irregularly transverse; wings hyaline, stained with red, and with the nervures of all the lower part red. Hind femora rather thick, strongly serrated above; hind tibiæ with 7–9 spines, inner spurs of nearly equal length.

Fig. 137.—*Kripa undulata.*

316. **Kripa undulata**, sp. nov.

Light greyish brown, shading into yellowish beneath. Lower mouth-parts varied with black. Tegmina subhyaline, mottled with pale brown; wings hyaline, stained with red, nervures brown towards the costa, otherwise red. Hind femur yellowish (or red beneath in life?), the outer area white, with longitudinal black lines below the bounding carinæ, and a central longitudinal black line, and with irregular longitudinal rows of black spots between; inner area black within the bounding carinæ, except towards the extremities; hind femora red, with 7 to 9 black-tipped spines.

Length 35 mm.: expanse of tegmina, 53 mm.

PUNJAB: Campbellpur.

Type in the British Museum.

Genus CALOPTENOPSIS.

Caloptenopsis, Bolivar, Jorn. Sci. Lisb. (2) i, 1889, p. 173.

TYPE, *Caloptenus vittatus*, Bol., from W. Africa.

Range. India, Africa.

Fastigium of the vertex concave and passing into the frontal ridge, which is moderately broad and flattened, sparingly punctured, and not expanded below; lateral carinæ very slightly marked. Pronotum rather short and broad, with three carinæ, the hinder area generally longer and broader than the fore part, transverse sutures very slightly marked, the hindmost generally placed before the middle. Tegmina and wings well developed; the wings hyaline, generally stained with red. Hind femora much thickened, generally rather shorter than the abdomen and serrated above; hind tibiæ with 7–9 spines on each side, and the lower terminal spine on the inner side generally much longer than the upper one.

Key to the Species.

1 (2) Dusky markings of the middle of the tegmina distinctly transverse	*insignis*, Walk., p. 258.
2 (1) Dusky markings of tegmina not transverse.	
3 (4) Hind femora with the outer carinæ distinctly spotted with black	*punctata*, sp. n., p. 260.
4 (3) Hind femora with the outer carinæ not distinctly spotted with black.	
5 (6) Hind femora with the lower outer carina marked with an interrupted black line	*glaucopis*, Walk., p. 259.
6 (5) Hind femora with the lower outer carina pale	*liturifer*, Walk., p. 259.

317. Caloptenopsis insignis, *Walk.*

Caloptenus insignis, Walker, Cat. Derm. Salt. B.M. iv, 1873, p. 701.
Caloptenus spissus, Walker, op. cit. v, Suppl. 1871, p. 70.
Var. *Caloptenus clarus*, Walker, op. cit. iv, 1870, p. 711.
Caloptenopsis saussurei, Martinez, An. Soc. Españ. 1896, p. 11.

Brown above, and mostly white beneath. Head brown above, and over the frontal ridge, and below the eyes; there is also a white band dotted with black, and separated by a black line from the white hind border of the head, running down behind the eyes. Pronotum brown, rather short, obtusely angulated behind, with the tip rounded; the sides are very coarsely punctured, the lower part being yellowish, obscurely spotted with black; on the sides is a broad oblique white stripe, not extending to the hinder area, and bordered above with blackish. Tegmina rather long and narrow, subhyaline, with numerous brown spots and markings, especially towards the base, and those towards the middle irregularly transverse; wings hyaline, strongly tinged with red (in the

type) towards the base and along the nervures of the lower part of the wing; hyaline in var. *clarus*. Hind femora moderately long and broad, the outer area white, the carinæ spotted with black, and with several longitudinal brown lines; the upper surface brownish; with transverse black bands, extending to the inner surface, which is yellowish, filled up largely with black; lower surface yellowish; pectus and base of femora white, speckled with black; hind tibiæ yellow, with 7–9 black-tipped spines, the lower inner claw hooked, bifid, and thrice the length of the upper one. Prosternal tubercle conical.

Length 34 mm.; expanse of tegmina, 66 mm.

INDIA.

Type in the British Museum.

318. **Caloptenopsis glaucopis**, *Walk.*

Caloptenus glaucopis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 702.

Reddish brown. The fastigium of the vertex longer than broad, concave, with a slight median carina at the base, in addition to the usual ones within the eyes; face with a narrow white band before the eyes, and a wider one behind extending to the back of the head; the space below the antennæ is also whitish on each side of the frontal ridge; antennæ rather longer than the head and pronotum together. Pronotum with the sutures slightly marked, the hindmost placed just before the middle; hinder area thickly punctured, especially on the sides, hind border obtusely rounded; three pale marks on each side, the uppermost short, oblique, yellowish; the second slightly oblique, white, broad, extending to the hinder suture; the lowest white, broad, on the lower margin. Abdomen yellowish, spotted with black on the sides. Hind femora white outside, the serrations black, the surface with three suffused longitudinal submacular stripes, and a broken black line along the lower inner carina; the lower surface blackish outside and yellow inside, the upper area yellowish, with transverse black streaks passing into the inner surface, which is mostly black; hind tibiæ yellow, with 7–9 black-tipped spines; the lower inner terminal spine nearly twice as long as the upper. Prosternal tubercle thick, obtuse, slightly transverse.

Length 35 mm.; expanse of tegmina, 55 mm.

NORTH INDIA.

Type in the British Museum.

319. **Caloptenopsis liturifer**, *Walk.*

Caloptenus liturifer, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 703.

Caloptenopsis crassiusculus, Martinez, An. Soc. Españ. 1896, p. 11 (n. syn.).

Brown. Scutellum of the vertex concave, longer than broad, rounded in front, and passing into the frontal ridge, which is

slightly narrowed between the antennæ; beneath each eye is a black band divided by a narrow yellow line, and the hind part of the head is white behind this. Pronotum short, slightly produced and truncated behind, with the three carinæ pale, and two more or less distinct triangular black spots on the front of the median carina; the transverse sutures fairly distinct, the hindmost placed about the middle; below the lateral carinæ the deflexed lobes are marked with a quadrangular black spot, on which stands an oblique yellowish callous spot, and some dots of the same colour; beneath, the lobes are yellow, intersected by a blackish streak, but these markings scarcely extend beyond the hind suture. Tegmina yellowish brown towards the base, and subhyaline beyond, with brown markings separated by pale ones, the most distinct being a longitudinal row of pale spots; wings hyaline, with the inner and lower half red. Legs ochreous yellow; hind femora mottled outside with blackish, and with two transverse black bands above, the inner surface mostly black; hind tibiæ with 7–9 black-tipped spines, lower inner spine distinctly longer than the upper. Prosternal tubercle rather small, conical.

Length 21–30 mm.; expanse of tegmina, 30–50 mm.

KASHMIR: Baltistan; MADRAS: Madura.

Type in the British Museum.

320. Caloptenopsis punctata, sp. nov.

Fig. 138.
Caloptenopsis punctata.

Brown. Fastigium of the vertex concave, hardly longer than broad, face and sides of head irregularly mottled with white and brown; antennæ rather longer than the head and pronotum together. Pronotum obtusely rounded behind, the sutures slightly marked, the hindmost placed about the middle; the deflexed lobes before the hind suture blackish, with white markings, the hind lobe often paler, especially at the sides. Tegmin subhyaline, irregularly spotted with brown, especially at the base; wings hyaline, with the lower inner half stained with red. Hind femora with the outer area whitish, with large black spots on the bounding carinæ, the longitudinal median and the short oblique ridges reddish, often more or less marked with dusky; hind tibiæ red, with 8–9 spines on each side, lower inner spine one-third longer than the upper. Prosternal spine rather large, conical.

Length 25–27 mm.; expanse of tegmina, 42–45 mm.

Genus PERIPOLUS.

Peripolus, Martinez, An. Soc. Españ. xxx, 1902, p. 303.

Type, *Calliptamus pedarius*, Stål.

Range. India.

Fastigium of the vertex sloping, forming an obtuse angle with the frontal ridge; antennæ filiform. Pronotum obtusely angulated before and behind, median carinæ distinct, lateral carinæ straight, diverging behind, or parallel, the prozona longer than the metazona. Tegmina short, lateral, rudimentary, with the mediastinal and anal areas very broad, especially the apical half of the tegmina; discoidal area narrow. Hind femora large, very stout, serrated above; hind tibiæ with 8 spines on the outer and 9 on the inner carina, no apical spines on the outer carina. Prosternal tubercle cylindro-conical; mesosternal lobes as broad as the intermediate space, with the inner border obtusely angulate, interlobular space very narrow behind; metasternal lobes widely separated, but rather less so than the mesosternals. Upper part of the last anal segment of the male very large; cerci of the male large, compressed, with a deep concavity at the tip; supra-anal plate of the male with three fine longitudinal furrows, the lateral ones converging behind, all terminating in the middle of the plate in a transverse furrow; infra-anal plate in the male forming a short obtuse pubescent triangle; supra-anal plate of the female triangular, divided by a transverse furrow, and with another longitudinal one at the base; lower valves sinuated.

321. Peripolus pedarius, *Stål.*

Calliptamus pedarius, Stål, Bih. Svensk. Akad. Handl. v (4), 1878, p. 75.

Yellowish ferruginous. Cheeks below, front and sides of pronotum distinctly punctured; pronotum above depressed, rather smooth, obsoletely punctured on the hinder lobe, opaque, with a very distinct median carina, and distinct obtuse shiny carinæ traversing the lateral margins; cheeks with a narrow postocular band, and a band on the vertex, continued to the extremity of the pronotum, and a lateral band on the sides of the abdomen above. A lateral curve on the sides of the apex of the hind femora, the base of the hind femora and the greater part of the outer side of the cerci all black; hind tibiæ with 8 or 9 black-tipped spines. Tegmina broadly elliptical, rudimentary, extending rather beyond the median segment, with grey nervures, and a black longitudinal band traversing the discoidal area.

Length 30–50 mm.; pronotum, 8–11 mm.; tegmina, 6–8·5 mm.; hind femur, 19–29 mm.

Sikkim: Kurseong; Assam.

Type in the collection of Brunner von Wattenwyl.

Genus HETERACRIS.

Heteracris, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 655.
Demodocus, Stål (*nec* Guérin), Bih. Svensk. Akad. Handl. v (4), 1878, p. 75.

Type, *Acridium herbaceum*, Serv.

Range. Africa, Oriental Region, Australia.

Body long, stout. Fastigium of the vertex slightly or not at all depressed, and rounded into the frontal ridge, which is broad and flattened, not sulcated; antennæ filiform. Pronotum with a distinct median carina, cut by three shallow sulci, the lateral carinæ slightly indicated, obsolete behind. Prosternal spine stout, more or less pointed, directed backwards; space between the mesosternal lobes narrow, longer than broad. Tegmina and wings long and narrow. Legs very long; hind femora moderately thickened at the base, and tapering beyond the middle, extending beyond the abdomen; hind tibiæ with from 12 to 14 spines. Anal segment of the male large; cerci stout.

Key to the Species.

1 (2) Tegmina unspotted .... *robusta*, Serv., p. 262
2 (1) Tegmina spotted.
3 (4) Tegmina with small scattered black spots. *illustris*, Walk., p. 263
4 (3) Tegmina with larger brown spots, having pale centres, and tending to become confluent.
5 (6) Fastigium of the vertex smooth, not depressed towards the extremity ...... *elegans*, Walk., p. 264.
6 (5) Fastigium of the vertex depressed towards the extremity .... *capensis*, Thunb.. [p. 263.

322. Heteracris robusta, *Serv.*

Acridium robustum, Serville, Ins. Orth. 1839, p. 647.
Heteracris ducalis, Walker, Cat. Derm. Salt. B.M. iv, 1870, pp. 663, 665.

Greenish brown, varied with darker brown and with yellow stripes. Antennæ reddish, longer than the head and pronotum; head greenish brown, with a broad brown band running down beneath the eyes, bordered in front by a yellow stripe; sometimes the whole front of the head between these stripes is dark brown; fastigium of the vertex short, slightly concave, and obtusely rounded in front, curving into the frontal ridge, which is narrowest between the antennæ, and gradually widened below; vertex dark brown, bordered with yellow on each side. Pronotum dark brown, closely and rather finely rugose-punctate, the upper part with the brown yellow-bordered band of the vertex continued to the extremity, the sides usually with some obscure greenish spots, the last sulcus placed slightly behind the middle. Abdomen greenish brown, sometimes with some yellowish lateral

spots towards the extremity. Tegmina yellowish subhyaline, closely reticulated towards the base with rufous nervures; wings hyaline, with a bluish iridescence towards the base. Hind femora longer than the abdomen, greenish yellow, darker above, and not serrated; hind tibiæ and tarsi red, tibiæ with the extreme base blackish, shining, and with 12 to 14 yellow black-tipped spines.

Length 58–65 mm.; hind femora, 40–42 mm.; expanse of tegmina, 115–120 mm.

Assam: Sylhet.

Type in the Paris Museum.

323. **Heteracris illustris**, *Walk.*

Heteracris illustris, Walker, Cat. Derm. Salt. B.M. iv, 1870, pp. 663, 664.

Head almost uniform yellowish, with a brown stripe nearly uniform in width, broadly bordered on each side with yellow, extending over the vertex and upper part of the pronotum; vertex carinated; fastigium depressed, obtusely and roundly angulate in front; frontal ridge not much expanded below, punctured; the face probably brownish in fresh specimens, a moderately narrow blue-black stripe beneath each eye. Pronotum coarsely punctured, the sides brownish, with whitish depressions above, and yellowish spots below. Tegmina subhyaline, with reddish nervures, and with small scattered black spots on the disk, not extending to the costal or inner marginal areas. Hind femora yellowish, streaked with reddish; hind tibiæ and tarsi purplish blue, the former with from 11 to 13 white black-tipped spines.

Length 70 mm.; hind femur, 43 mm.; expanse of tegmina, 116 mm.

South India.

Type in the British Museum.

324. **Heteracris capensis**, *Thunb.*

Gryllus capensis, Thunberg, Mém. Acad. Pétersb. v, 1815, p. 240, ix, 1824, pp. 399, 423, pl. xiv, fig. 6.
Heteracris insignis, Walker, Cat. Derm. Salt. B.M. iv, 1870, pp. 663, 664 (n. syn.).

Dull yellowish. Fastigium of the vertex depressed, short, rounded, a narrow black line below the eyes, frontal ridge sparingly punctured, like the rest of the face, and not much expanded; vertex and back of pronotum with a uniformly broad brown longitudinal stripe, broadly bordered with yellow on both sides. Pronotum thickly punctured, with large punctures on the ridge behind the imperfect lateral carinæ, sides brownish, with two large whitish pits above on the anterior lobes. Abdomen reddish. Hind femora reddish above and yellowish below; hind tibiæ yellowish, with from 11 to 13 black-tipped spines. Tegmina

subhyaline, with reddish nervures, and numerous brown spots on the disk, the outer ones with paler centres, and sometimes showing a tendency to become confluent; wings greyish hyaline.

Length 57 mm.; hind femur, 35 mm.; expanse of tegmina, 92 mm.

HIMALAYAS; BENGAL: Calcutta; MADRAS: Coromandel Coast; CEYLON; BURMA: Bhamo; CHINA; S. AFRICA, &c.

325. Heteracris elegans, *Walk.*

Heteracris elegans, Walker, Cat. Derm. Salt. B.M. iv, 1870, pp. 662, 663.

Yellow. Fastigium of the vertex not depressed, but with some large punctures on each side near the extremity, and passing into the frontal ridge, which is equally broad throughout, and bordered by narrow black lines on each side, outside which are light brownish bands; a brown band, expanded behind, runs over the vertex and frontal ridge; on the latter, the centre is yellowish; there is also a short blackish streak under each eye; median carina of the vertex obsolete. Pronotum thickly punctured, with a reddish brown longitudinal band above, bordered on each side by broad yellow ones; the sides reddish brown, bordered all round with yellow, and with four yellow spaces, the two uppermost largest, the lower hind space linear. Femora yellow, the upper carinæ imperfectly lined with black towards the base; tibiæ and tarsi dull green, the tibiæ with 12 to 13 white black-tipped spines, and the terminal spurs yellow. Tegmina subhyaline, with two longitudinal greenish-yellow spaces, and numerous brown pale-centred spots on the disk, with a tendency to become confluent and transverse; there are also rows of dark spots on the costal area, and towards the base on the inner marginal area; wings hyaline.

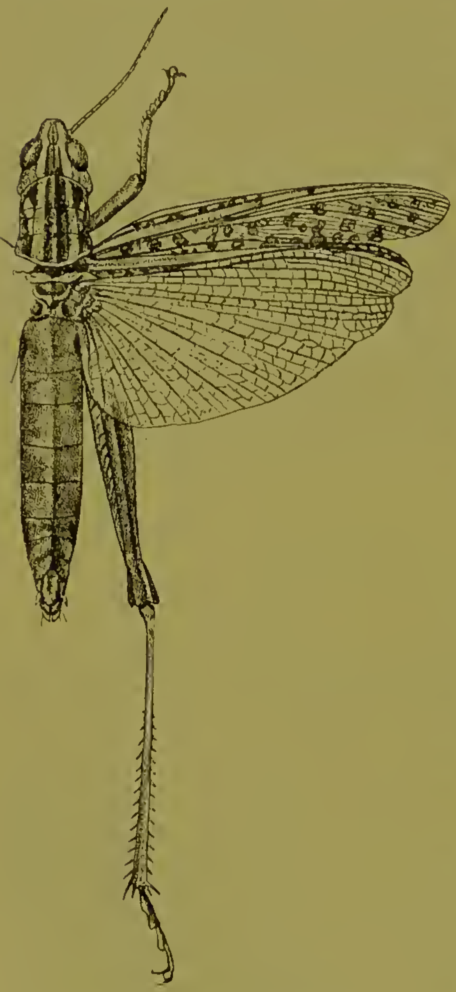

Fig. 139.—*Heteracris elegans.*

Length 50 mm.; hind femur, 34 mm.; expanse of tegmina, 77 mm.

NORTH INDIA.

Type in the British Museum.

Genus TYLOTROPIDIUS.

Tylotropidius, Stål, Recens. Orth. i, 1873, p. 74.

TYPE, *Pezotettix* (*Tylotropidius*) *didymus,* Stål, from Sierra Leone.

Range. Africa, Burma, Ceylon.

Fastigium of the vertex with two depressions at the base; front very oblique. Pronotum with the front and hind lobes of equal length, with the lateral margins smooth and callous, more or less converging. Tegmina and wings well developed, the former densely reticulate in the postradial area, with no intercalated nervure. Hind tibiæ with from 9 to 18 spines; hind tarsi very long, the second joint half as long as the first. Anal segment of the male not enlarged, the cerci narrow and compressed. Prosternal tubercle bifid; metasternal lobes of the female truncated on the inner side, and connected by a straight suture.

Fig. 140.
Tylotropidius varicornis.

326. Tylotropidius varicornis, *Walk.*

Heteracris varicornis, Walker, Cat. Derm. Salt. B.M. iv, 1870, p. 667.
Tylotropidius ceylonicus, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 164, pl. v, fig. 57 (n. syn.).

Pronotum brown, with the lateral carinæ pale, curving hindwards, where they become evanescent, hind border somewhat roundly angulate. Prosternal tubercle compressed, truncated, and slightly bituberculate at the extremity. Tegmina castaneous, with a row of triangular whitish spots upon the radial nervure and a pale longitudinal stripe in the costal area; wings bluish hyaline. Hind femora thickened at the base, very slender towards the tips, the upper carinæ sparsely serrated, with the sulci of the outer area marked with brown, two spots on the inner surface; hind tibiæ towards the extremity dull blue, with from 12 to 15 spines on the outer carina; tarsi dull blue; tibiæ and tarsi very pilose.

Supra-anal lamina of the male elongate-triangular, sulcated; cerci straight, rounded, or slightly compressed, acuminate.

Length 28–48 mm.; pronotum, 5·8–8 mm.; tegmina, 23–36 mm.; hind femur, 23–32 mm.

S. INDIA; CEYLON; BURMA: Karen Hills.

Type in the British Museum.

Genus PARAEUPREPOCNEMIS.

Paraeuprepocnemis, Brunner, Ann. Mus. Genova, xxxiii, 1893, p. 151.

Pareuprepocnemis, Bianchi, Prem. Loz. Ross. Imp. 1902, pp. 174, 205, 320.

TYPE, *Pezotettix syriaca*, Brunn.

Range. Egypt, Arabia, E. Africa, W. Asia, India.

Allied to *Euprepocnemis*; pronotum truncated behind; tegmina lobiform, wings rudimentary; hind tibiæ with from 8 to 12 spines; male with the cerci compressed, sulcated above.

327. Paraeuprepocnemis pictipes, *Bol.*

Paraeuprepocnemis pictipes, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 631.

Reddish yellow, varied with chestnut-brown. Fastigium of the vertex obtusely and slightly produced, regularly curving into the frontal ridge, which is marked with rows of compressed points, and is expanded towards the tip; antennæ red, paler at the base. Pronotum opaque brown above, with the carinæ more shining, hind border roundly truncate; upper part of lateral lobes with a large oblique shining black blotch, bordered with pale above and below, and with large impressed punctures on the lower and hind margins. Prosternal tubercle thick, rather smooth behind. Tegmina short, lanceolate, not longer than the pronotum. Front femora thickened in the male, and linear in the female; hind femora shining red beneath, the outer area brown, with an oblique yellow band at the base, and a yellow spot just beyond the middle; hind tibiæ red, with the base more or less brown, with a pale ring. Abdomen varied with brown; supra-anal lamina of male broadly lanceolate, with a short sulcus at the base and middle; cerci short, pointed.

Length 16–23 mm.; pronotum, 3·8–5·3 mm.; tegmina, 4–6 mm.; hind femur, 11–15 mm.

MADRAS: Madura.

Types in the collections of Pantel and Bolivar.

Genus EUPREPOCNEMIS.

Euprepocnemis, Fieber, Lotos, iii, 1853, p. 98; iv, 1854, p. 9.
Euprepocnemis, Stål, Recens. Orth. i, 1873, p. 75.

Type, *Gryllus plorans*, Charp.

Range. S. Europe, Africa, W. Asia, Oriental Region.

Vertex horizontal, impressed, front sloping, frontal ridge rounded, obtuse, not sulcated: antennæ filiform, longer than the head and pronotum together. Pronotum truncated in front, rounded and subtruncated behind, the disk smooth in front, punctured behind, with the median carina slightly raised, and intersected only by the third sulcus, the lateral carinæ straight, slightly diverging; the front lobe longer than the hind lobe. Tegmina and wings well developed. Prosternal tubercle obtuse towards the tip, sloping; pectus narrow, the mesosternal lobes approximating, with the inner margin rounded; metasternal lobes extended behind the foveolæ and contiguous. Anal segment of the male not enlarged; supra-anal lamina triangular, slightly sulcated at the base; the cerci slender, compressed, pointed or laminated; the supra-genital lamina slightly produced, obtuse.

Key to the Species.

Hind femora with a longitudinal black stripe on the outer side	*alacris*, Serv.
Hind femora with no black stripe on the outer side . .	*pulchra*, Bol.

328. Euprepocnemis alacris, *Serv.*

Acridium alacre, Serville, Ins. Orth. 1839, p. 682.
Acrydium deponens, Walker, Ann. Nat. Hist. (3) iv, 1859, p. 222.
Heteracris rudis, Walker, Cat. Derm. Salt. B.M. iv, 1870, pp. 662, 664.
Euprepocnemis plorans, var. *intermedia*, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 630.

Yellowish. A black streak below each eye, a broad velvety black subparallel-sided stripe runs over the vertex and pronotum; the median carina narrowly, and the lateral borders rather broadly yellow; deflexed lobes yellow, with an oblique blackish bar, and suffused pale markings above and below it. Tegmina subhyaline, with numerous brown spots, which towards the base form a linear series divided by pale spaces; costal area unspotted, inner marginal area slightly spotted towards the base: wings hyaline, slightly greenish towards the base. Abdomen shining greenish brown. Femora yellowish, with a longitudinal black streak on the outer surface; tibiæ and tarsi purplish brown, the former with two pale bands towards the base, and with 9 or 10 white black-tipped spines.

Length 35–38 mm.; expanse of tegmina, 60–66 mm.

Madras: Madura; Ceylon.

Type in the Paris Museum.

329. **Euprepocnemis pulchra,** *Bol.*

Euprepocnemis pulchra, Bolivar, Ann. Soc. Ent. France, lxx, 1902, p. 630.

Olivaceous. Head pale red, broadly banded with black below the eyes; front slightly oblique, frontal ridge nearly parallel-sided, narrowed towards the clypeus, impress-punctate; fastigium of the vertex smooth, nearly transverse, slightly sulcated; antennæ pale above, brown below. Pronotum with a broad velvety-black stripe on the back, distinctly expanded and paler in the middle, the borders green, the median carina compressed in front, with the deflexed lobes testaceous brown. Prosternal tubercle sub-cylindrical, compressed in front, and obtuse towards the tip. Tegmina extending beyond the hind femora in the male, but not in the female, thickly spotted with brown or green, anal area green. Femora pale red or green, obscurely spotted with brown, with a broad pale ring before the extremity, black at the base on the inner side, and with the knees marked with black curves; hind tibiæ brown at the base, with a pale ring, the apical half dull red, the spines white, tipped with black. Cerci compressed, curved.

Length 22–25 mm.; pronotum, 4·5–9 mm.; tegmina, 20–36 mm.; hind femur, 13–29 mm.

MADRAS: Kodaikanal.

Types in the collections of Pantel and Bolivar.

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